APR

VETERINARY MEDICINE

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VOL. XXIX
No. 5

75 E. Wacker Drive,
Chicago, U. S. A.

Junior FORT DODGE
BIO-CHEMIC REVIEW

MAY 1934

Poultry Practice Builders

● Those early spring chicks are growing fast. Poultry practice will assume increasing importance in the next few weeks.

Which brings us to a timely question: How are your stocks of avian pharmaceutics?

For your convenience we append a brief check list of Fort Dodge poultry products. By ordering now from your nearest Fort Dodge branch you will be prepared for emergencies.

CHECK LIST
Fort Dodge Avian Pharmaceutics

Of course all are absolutely true to formula and contain ingredients of highest obtainable quality. They are conveniently packaged and economically priced.

- ☐ Guaiodine Tablets
- ☐ Combined Fowl Tablets
- ☐ Fowl Anthelmintic Tablets Combined
- ☐ Fowl Anthelmintic Tablets No. 2
- ☐ Sulphocarbolates Compound Tablets
- ☐ Betanine Compound
- ☐ Anthelmintic Powder Fowls
- ☐ Tapeworm Tablets

HOG REDUCTION BOOSTS VACCINATION PROSPECT

● Practitioners have an excellent opportunity to greatly increase the number of vaccinated pigs this season.

With nationwide reduction of pork production under the government's corn-hog loan agreement, the added necessity of protecting herds against cholera becomes selfevident. For now as never before the farmer cannot afford to take chances on an epidemic further lowering production.

Many an agriculturist has learned to his bitter distress the seriousness of the losses he sustained last year due to "saving" on the administration of serum and virus. Had those hogs been vaccinated and saved they would have counted in the 1934 quota—on which bonuses are being paid.

●

THE VACATION TRIP OF A LIFETIME

● It is none too soon to begin laying plans to attend the big International Veterinary Congress in New York City, August 13-18. Every veterinarian in America should be there.

Fort Dodge
TISSUE EXTRACT
NEW!

Extensive experimental work has shown this new product of extraordinary value in abnormal skin affections which have not yielded to ordinary treatment.

Marked success has followed its subcutaneous injection in cases of sarcoptic and demodectic mange, eczema, and other common dermatoses of animals.

Descriptive circular on request.

Veterinary Medicine

Registered in U. S. Patent Office

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D. M. Campbell, Editor A. T. Kinsley, Associate Editor
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Chicago has 1,938 physicians per million of population and Boston has 3,268. The average for the whole country is 1,281 physicians per million inhabitants.

* * * *

Miller of Montreal has reported the use of a new anesthetic, evipan. It is the sodium salt of N-Methyb C.-C.-cyclohexenyl-methyl-barbituric acid. It is injected intravenously and produces a deep normal sleep within 30 minutes. Its value is enhanced by a preliminary dose of morphine. Evipan has been used in more than 20,000 cases in Europe with only one fatality.

* * * *

The Committee on Costs of Medical Care state that more than 360 million dollars is spent annually for patent medicine. This amounts to 10% of the total cost of all medical care. Of the drugs and medicines consumed, less than one-third are used on the express orders of physicians and most of the money spent for them is wasted.

* * * *

Morton of Boston, introduced ether to the medical profession in 1846. Simpson of Edinburgh, introduced chloroform anesthesia in Great Britain in 1847. Dadd of Boston, operated upon a horse under chloroform anesthesia in 1856. Anesthesia was not universally used by the medical profession until after the Civil War.

Between the Columbian Exposition in Chicago in 1893 and A Century of Progress Exposition in 1933, the average height of women in the United States increased 3.3 inches and the average weight increased 26 pounds.

* * * *

In 1932, in New York State, there were 16,344 deaths from cancer, a death rate of 125.1 per 100,000 population; 927 of these deaths were the result of cancer of the rectum and anus, or 5.6% of all the cancer deaths.—*Medical Times,* 62:1.

* * * *

Chemical analysis of foods means little—like saying a lot is 100 by 200 feet without saying whether it is on the face of a cliff or in the middle of a swamp. In addition to several other things necessary to create a perfect food [for dogs] we are positive that vitamins are absolutely essential.—McDowell Lyon, in *The American Kennell Gazette.*

* * * *

A new chlorine compound, N-N-dichloroazodicarbonamidine, called Azochloramid for short, possesses the unique advantage of not breaking down chemically and losing its potency in the presence of organic material. The indications are that this new compound will prove a more effective germicide, when mixed with substances as milk, serum, pleural exudate, etc., than Dakin's solution.

Forty-eight hours after ingestion of *Oesophagostomum longicaudum* by pigs free from parasites except strongyloides, nodules containing a single larva were found. Mature nodular parasites were found in from 50 to 53 days after feeding the embryos.—*Bio. Abs.* 8-1.

* * * *

Swine erysipelas has been identified in several widely separated communities in Saskatchewan. The disease occurred in acute, subacute and chronic forms. The diagnosis was based upon the isolation of the causative microbe as well as by serological test and animal inoculation. The widespread occurrence of this malady in North America makes it a major problem in disease control.—*Bio. Abs.* 8-1-1082.

* * * *

Milk and Childhood Tuberculosis

In 1929 the death rate from all forms of tuberculosis in England and Wales was 96 per 100,000 population. In the same year the rate was 76 in the United States and 70 in Illinois. For 1930 the rate was 90 in England and Wales, 72 in the United States and 63 in Illinois. For a closer analysis of these data it is necessary to take the 1928 statistics, the most recent available in detail from Great Britain. In that year the general death rate from tuberculosis in England and Wales was 93 per 100,000 population and in the United States 79. For pulmonary tuberculosis, however, the rate in England and Wales was only 76 against 70 in the United States, not a great difference. For non-pulmonary tuberculosis, the types most frequently due to bovine infection, the rate in England and Wales was 17 against 9 in the United States. In other words, the death rate from those forms of tuberculosis most frequently of bovine origin in England and Wales, where pasteurization is not a general practice and where cattle are highly infected with tuberculosis, was nearly twice that which prevailed in the United States.—*Illinois Health Messenger.*

In the ruins of the library at ancient Ras Shamra, Syria, archæologists found among the inscribed tablets a veterinarians' guide to the diseases of horses.—*S. N. L.*, 25:671.

* * * *

In working on sheep parasites, we found a difference in the toxicity of oil of chenopodium from different sources and differing in age. Of some specimens, a small amount proved lethal.—W. L. Chandler.

* * * *

When man ceased to be nomadic and became a domiciliary animal he also created more favorable conditions for the successful development not only of his own helminth parasites but also those of his dog and his stock. It is a significant fact that man owes more to his associations with these animals than to his supposed primate ancestry for the helminth parasites he harbors. For these, with few exceptions, are identical with or closely related to species which occur in these domesticated animals. As might be expected, knowledge acquired by a comparative study of the parasites in this little community has been of the greatest service to each, both as regards their prevention and treatment and the understanding of their pathology.—R. T. Leiper, in *Veterinary Record*, 14:5.

* * * *

Ear Trimming

The following breeds have their ears cropped—danes, dobermans, Boston terriers, bullterriers, Manchesters, miniature pinschers, Brussels Griffons and boxers. Yankee terriers and schnauzers may have natural or cropped ears.

Five states prohibit cropping ears—New York, Massachusetts, Pennsylvania, Connecticut and New Jersey. Michigan demands that only a veterinarian perform the work.

The style varies with each breed.

Formerly, ears were trimmed at about the age of five months. Now it is customary and also advisable to trim them at the age of three months. They must be kept taped or in forms for about three weeks, to prevent curling.—*Dog World.*

Ovine infectious abortion caused by a diphtheroid organism has been identified in New South Wales.—*Bio. Abs.* 8-1-1088.

* * * *

The horse is coming back strong. If we are to keep him strong, we must control his parasites. No horse that has an aneurism or a stomach full of bots is worth his oats.—W. L. Chandler.

* * * *

Since the advent of aseptic surgery much has been written about the formation and prevention of adhesions, but only two basic facts stand out:

1. No foreign body, fluid or solid, bland or irritating, sterile or unsterile, can be placed in contact with the peritoneum without encapsulation and adhesion formation by adjacent loops of bowel and omentum.

2. No method or substance has been developed whereby adhesions can be absolutely prevented.—*Medical Times,* 62:1.

* * * *

Raw and Pasteurized Milk

From all available evidence it seems quite certain that if there is any difference in the nutritive value of raw and heated milk, that difference is microscopic in volume. On the other hand, the mass experience of whole city populations where nothing but pasteurized or other forms of heated milk has been used by the masses for years is evidence enough that the nutritional value amply justified all that has ever been said in favor of milk as a food. Since pasteurization of milk came into general use in our cities the stature of children has constantly increased. Athletic prowess has grown so rapidly that one world's record after another has fallen. The mortality rates among children in the cities has constantly declined. General health conditions among the young have grown better and better. If this can be done with a food supply that includes pasteurized milk we have no apology to make for advocating that process which even the enemies of pasteurization admit is a safeguard against contamination.—*Illinois Health Messenger.*

The Hartsdale Canine Cemetery, Hartsdale, N. Y., just outside NYC, contains the resting place of more than 5,000 dogs.—*Dog World.*

* * * *

Health Protection in the U. S. S. R

In tsarist Russia sanitary and health conditions were at a very low level. Only 19 cities in the entire empire had sewage systems; only about 200 had water supply systems and of these few had safe drinking water. Moreover, even in these cities the slum districts where the workers lived were for the most part not equipped with either sewage or water systems. Conditions in the rural districts were equally bad if not worse. Nine-tenths of the population did not have even the most elementary sanitary facilities. Add to this the fact that over 70 per cent of the entire adult population and nearly 90 per cent of the women were illiterate and ignorant of the simplest rules of health and sanitation, and the reasons for the high death rate prevailing, higher than that of any other European country, become clear. Epidemics ravaged the country; the annual toll of lives lost from such plagues as typhus, small-pox, malaria, cholera, tuberculosis, and venereal diseases was extremely high. The network of medical and health institutions was entirely inadequate, particularly in the rural districts, where there was only one doctor for every 20,000 of the peasant population. Institutions of a prophylactic nature—sanitaria, hospitals for tuberculosis, venereal diseases, and narcotism, maternity clinics, special hygiene centers—were either nonexistent or very few in number.

Expenditures for health protection and medical care from all sources totaled 2.1 billion rubles in 1932, more than sixteen times the 1913 figure (128.5 million rubles) and three and one-third times the 1928 amount (622 million rubles). The number of physicians increased from 19,735 in 1913 to 76,000 in 1932 and the number of health officers from 472 to 5,819.—*Economic Review of the Soviet Union,* 9:1.

The A. V. M. A. World Fair Exhibit

The American Veterinary Medical Association has arranged with the Board of A Century of Progress Exposition in Chicago, for an exhibit at the World Fair during the coming summer. The exhibit will be located practically in the center of the exhibit of the allied medical arts in the Hall of Science.

It will comprise two opposite booths, each 20 feet square. In the main, the exhibit will consist of eight dioramas, giving a three-dimensional display, each 36 inches wide, 36 inches deep and 30 inches high. The dioramas will consist of molded figures made to scale, and with proper regard for perspective. The eight dioramas will depict: City veterinary practice; country veterinary practice; laboratory research; field research; public health; Veterinary Education; military veterinary medicine and biological manufacture.

Briefly, the eight dioramas will include the following:

1. City veterinary practice—an examination room in a small animal hospital, showing a dog on an examination table, with the veterinarian and its owner; and to indicate something of the equipment, without meaning to imply that it would all be in the one room, the diorama will show a laboratory table, with a test tube rack, Erlenmeyer flasks, Bunsen burner, Petri dishes and a man seated at the table examining something through a microscope. Beyond the table will be a violet ray machine and going on around the wall, a door marked office, a door marked surgery, a drug cabinet, a door marked x-ray laboratory, electric refrigerator, a large sink and an instrument cabinet. Various placards will be used, the central theme of which will be "Intelligent treatment depends upon correct diagnosis."

2. The diorama depicting country practice will be an outdoor view, a farm scene, farm house and buildings and about all domestic animals shown in the foreground, or in pastures in the background. The veterinarian will be shown going to his automobile, ready to leave the place and telling the farmer that his animals have passed a good inspection. The placards used in this diorama will stress the central idea that veterinary services are necessary to keep farm animals healthy, that is, preventive medicine.

3. A diorama depicting laboratory research will show the usual equipment of a research laboratory. Most conspicuous in the foreground will be a dog presumed to be convalescent from distemper and on which blood examinations and other tests have been made daily throughout the attack. The intention will be to get over the idea that while such investigation and examination is frequently called vivisection and condemned as such, far from causing the animal unnecessary pain, it is the means of avoiding a great deal of suffering—cruelty to animals.

4. The diorama depicting field research will have as its central theme, the discovery of insect-borne diseases by Kilborne, Curtice and Smith in 1893. The scene will show a southern farm, with cattle in poor condition, presumably suffering from tick fever. The three noted doctors will be shown busy in their investigation, and in the background, a view of the Panama Canal and a legend that it could not have been built but for a knowledge of the part insects play in transmitting disease.

5. The Public Health diorama will deal with only meat inspection as conducted by veterinarians of the Bureau of Animal Industry and milk inspection by veterinarians in the employ of municipalities. Placards will indicate the important diseases commonly communicated from animals to man.

6. A diorama will deal solely with veterinary education, showing models of the buildings of some of the veterinary colleges, and, separately, interior views and equipment, stressing the idea that spe-

cialized training of four to five years is required of a veterinary student before he is entrusted with the responsibilities of a veterinarian; and that those without such special training are not competent to undertake responsibility for disease prevention, control or treatment.

7. The military veterinary medicine diorama will stress the fact that the inspection of *all* foods of animal origin for the personnel of our army is conducted by the Veterinary Corps, and includes in addition to meat and milk inspection, inspection of all meat products, milk products, poultry, eggs and fish. By placards, it will show that the Veterinary Corps is responsible for the health and efficiency of army animals from the time they are purchased until their usefulness is over, and that it inspects also the grain and forage used by the army.

8. The central theme of the diorama depicting biological manufacture will be the service of the veterinary profession in preparing vaccines, serums and other biological products of animal origin for the use of physicians. It will show an inside view; horses being bled for the manufacture of diphtheria and perhaps tetanus antitoxin, and calves being used for the manufacture of smallpox vaccine.

Charts on the remaining wall space of the booths will show other services rendered by the veterinary profession and their value to the public, stressing again that all intelligent treatment must depend upon a correct diagnosis, and inferentially that the use of proprietary remedies whose composition is unknown, for ailments the pathology of which is not understood is wasteful and futile.

Unquestionably, the exhibit viewed as it will be during the summer by millions of people, will tell a story of veterinary service with which the public is almost wholly unfamiliar. The principal regret is that it was not shown last summer also. The exhibit in detail and as a whole will be one which the veterinary profession of this country may show with pride to the visitors from other lands, who make the trip to Chicago planned to follow the meeting of the 12th International Veterinary Congress in New York.

* * * *

Dog Food Advertising Policy

We believe that all of the dog foods advertised in these pages are meritorious products. We have declined the advertisements of a number of brands, the quality of which we had reason to question. However divergent the opinions of veterinarians may have been in the past, there is now nearly universal agreement among them that biological value is practically the only standard by which the adequacy of a dog food may be judged, and we think the time has arrived when no manufacturer of dog food should expect the approval of the veterinary profession for his product unless he can show by scientific, biological tests, that it possesses real value as a food for dogs.

To this end, after October 15th next, no advertising will be accepted by this publication for any brand of dog food that cannot and does not submit with its application for advertising space, a record of scientifically conducted biological tests to show that the product possesses high food value for the type or class of dogs for which it is recommended, and all statements made in the advertising must conform to the facts established by these tests. Records of the tests will be accepted subject to verification in our own laboratories when and if we see fit to conduct tests on those brands.

The date set for effectuating this policy will permit all manufacturers, who have not made such tests on their products, to make them, and thus give the purchaser information without which he cannot make an intelligent selection or use of the product.

The Serum-Virus Code

After eight months of more or less constant work on the part of the anti-hog cholera serum and hog cholera virus industry, the NRA and the AAA, the formation of a code for that industry was completed and the code signed by the President, making it effective March 9th.

The serum code contains the usual labor provisions common to all codes, with greater or less adaptation to the particular industry involved; the usual restrictions on unfair trade practices, and provisions for the organization of the customary "Authority" for its effectuation.

The principal purpose of the serum-virus code is plainly to prevent the exploitation of labor by "chiselers." This is in part to be motivated by the restrictions on unfair trade practices, in part by outlawing "destructive" prices, otherwise by direct labor provisions.

The only protection afforded the consumer lies in the authority of the Secretary of Agriculture to declare a price "burdensome" and prohibit it. This may or may not afford the consumer protection. If used as the Secretary's authority was used in fixing the price of milk, it is indeed a poor protection. Consumers will be doubly fortunate if the Secretary never has occasion to use this power.

Since labor does not enter very largely into the cost of serum, and since in the main, labor in that industry has always been better paid than labor in similar industries (meat packing), the only thing of importance in the code to the user of anti-hog cholera serum and virus, is the creation of a control board for the industry, the Serum Code Authority, Inc. This control includes not only the production of anti-hog cholera serum and virus, but to sale and distribution by the producers thereof.

This Authority is given wide discretionary powers in the control of the industry. All, however, are subject to the approval of the AAA Administrator and of the Secretary of the U. S. Department of Agriculture, the latter not only having authority to veto and render null and void all acts of the Authority, but may supplement or supplant them by the issuance of regulations of his own.

A good start has been made by the industry in the election of ten able members to comprise the Authority. These were elected, five by the ethical producers and five by the producers selling direct to laymen. Their names are: G. G. Graham, R. M. Young, G. H. Williams, Dean Corsa, E. A. Cahill, T. B. Huff, Clyde Hevner, W. J. Kennedy, Frank R. Jones and John E. Swaim. The Authority has made a good start by electing E. A. Cahill of the Allied Laboratories, Inc., its president. The industry is in safe hands while the personnel of the Serum Code Authority, Inc. remains as at present. At least six of the ten are disposed to be fair to veterinarians.

The future conduct of the serum industry is now in the hands of these ten men. If improvement, which has long been sadly needed in this industry, is effected, the credit will be theirs. If no improvement is effected or if the price of serum is set too high, the blame must rest upon them, unless they can show that their constructive efforts have been nullified by higher authority. They can and undoubtedly will stabilize the price of serum to the great advantage of all concerned and particularly to the veterinarian.

The restrictions on unfair practices seem all inclusive, except for one type, which is specifically provided. When the price of serum is set by a firm, and it must be neither "destructive" nor "burdensome," that price must be adhered to until a new price is publicly announced. Serum cannot be shipped on consignment, or stored except at a price set by the Authority. Other articles cannot be given free with it, or sold at less than the market price as an inducement to the purchase of serum; nor can taxes be paid, nor transportation charges; nor serum furnished free for "revaccination" nor can

virus be replaced free when outdated, unless it was dated not more than 30 days in advance at the time of sale.

No rebates on the purchase of serum can be paid, except that Farm Bureaus may rebate to their members, provided they do not do it at the same time the serum is purchased and also we assume that the rebate be called "dividend."

We repeat, the "serum situation" which in the past has, in the main, been satisfactory to no one and deplored by all, is now in the hands of the Serum Code Authority, Inc. As with any other pudding the proof of this code pudding lies in the eating, and the first taste has been good. In states where the vaccination of hogs has been largely in the hands of the Farm Bureau as it has been in Illinois, Nebraska and a number of others, the price of serum has varied greatly heretofore, in the different counties often being as much as 25% less to farmers than to veterinarians. Under the new stabilization it is the same in all states and in all counties of the states. At present there is a price differential in favor of the veterinarian equivalent to about one-third of the cost of his services.

Animal Carriers of Rocky Mountain Spotted Fever

In an experiment by Jellison of the U. S. Public Health Service, it was shown that meadow mice, *Microtus pennyslvanicus modestus,* are highly susceptible to the virus of Rocky Mountain spotted fever and deer mice, *Peromyscus maniculatus artemisiat,* are somewhat less susceptible. House mice *Mus musculus,* were shown to be distinctly resistant to the virus. Mice are important hosts of the larval and nymph forms of *D. variabilis* and it appears probably that meadow mice and deer mice are natural avenues of the transfer of spotted fever virus from infected to non-infected ticks, and in some regions at least, may be factors of importance in the natural maintenance and spread of the disease.

Dog Food Code Ready

After months of conferences in Washington, New York City and Chicago, between producers of dry and canned dog foods and the NRA, a code for this industry has been completed and referred to General Johnson. There is a possibility, of course, that further changes may be made before the code is signed by the President, but in view of the very full hearing that has been given to all units in the industry, changes seem unlikely.

This magazine has rendered all possible assistance in the formation of this code, not only by supplying articles on dog foods, which have been published in its pages during the past two years and more, but through a representative, Doctor Patton, who has attended the hearings in Washington and elsewhere. This magazine, not being financially interested in the manufacture, distribution, sale or purchase of dog foods, has been in a particularly favorable position to supply authoritative information with entire impartiality, and such information has been used largely as a "yard stick" by which claims were measured.

Veterinarians everywhere will be gratified to know that, in part, as a result of the information made available by the articles on dog food in VETERINARY MEDICINE and a great deal of insistance, the code as now written, recognizes biological values as a basis for adequacy and quality, and not alone chemical analysis as was strongly urged upon the authorities. The purchasers of dog foods, veterinarians and all interested in the welfare of the dog have reason to be grateful for the loyalty, patience and intelligent understanding of this problem on the part of the NRA officials, and particularly of Deputy Administrator McQuillan, Consumers Research Representative Haddock, Lake of the Economic Division and others. Veterinarians will also be gratified to know that the veterinary profession had, in Doctor Patton, a representative almost constantly at the conferences.

Common Surgery of Small Animals

By CHAS. W. BOWER
Topeka, Kansas

Surgery of small animals may be classified under two distinct groups, (1) those operations that are required to alleviate suffering from a pathological condition, and (2) operations to make pets more companionable, more suitable for house pets, and to satisfy certain styles. The latter include such operations as spaying, castration, and caudectomy. These constitute without a doubt the most common surgical work of the small animal practitioner. It is to this class that the writer directs his few remarks, in the hope that it may aid some fellow practitioner over some "rough spots."

When I was asked to prepare a paper on "common surgery," my first impression was, "What a kindergarten subject; surely practitioners do not care to read about spaying and castration, because those were their first surgical exercises when in college." But upon second thought I recalled how many general practitioners have inquired concerning spaying, especially of cats, and how eager they have been to see demonstrations of such operations. It is with this in mind that I explain our method of handling this class of surgery. I wish it clearly understood that this is only "our method" and that there are many other techniques and methods of aftercare that are just as good and it may be better.

We will first consider spaying, the most common operation performed on the dog.

Spaying

Preparation of the Animal.—The proper preparation of an animal before any surgical operation is of no small consequence; if we are to obtain the best results, we must have a fit subject on which to work. First examine the patient for general health; take the temperature to see if she is showing symptoms of any febrile disease. If there is an abnormal temperature, postpone the operation for a while; it may save the operator much embarrassment. Examine carefully for abscesses or infected wounds. This is an especially valuable precaution when operating on cats. Infection can be carried easily from a wound to an operative incision, thereby causing great delay in recovery; sometimes a fatal outcome.

Diet should not be overlooked in our preparation. The patient should be fasted for at least twelve hours, and preferably for twenty-four hours. A mild laxative should be administered twelve hours before the operation. Water may be given *ad libitum.*

If the animal is a pup, or of an age susceptible to distemper, it should be given a prophylactic dose of homologous serum upon entering the hospital or before the operation. The hospital may be perfectly free of distemper infection, but the animal's resistance will be lowered by the operation and she becomes a good subject for distemper. If the disease should develop, whether from previous or early subsequent exposure, it will surely reflect upon the surgeon.

After the patient has been fasted and given a thorough examination we give our preliminary anesthetic, a subcutaneous injection of hyocine, morphine, and cactoid. Small dogs, such as Boston terriers and fox terriers, are given one tablet of the No. 1 size (Abbott). Large breeds, such as pointers, German shepherds, and collies, are given two tablets. The action of this combination of drugs is two-fold, as a hypnotic and emetic. Frequently, even after a long fast, the emetic will reveal undigestible material, such as hay or straw, in the stomach. This would

certainly not be of any benefit if allowed to remain in the stomach while the patient was recovering from a surgical operation. There would be a good chance for a well established case of intestinal toxemia to develop about the fourth or fifth day, and if this should occur our prognosis would be from fair to unfavorable.

Instruments and Their Preparation.—While the preliminary anesthetic is taking effect we prepare our instruments. There are two types of sterilization. Instruments with sharp cutting edges, such as scalpel, scissors, and needles, are submerged into formaldehyde and alcohol solution; the others are boiled.

The instruments selected are: two scalpels, two fine-pointed artery forceps, one Snook's Ovariectomy hook, four Pean's forceps, scissors, two needles are desirable. Also cotton or linen suture, a sheet and a tube of sterile No. 3 medium hard chromic catgut are needed.

After preparing the patient and the instruments it is well for the operator to take invoice of himself. Of course, we all know how to clean and scrub our hands, and if rubber gloves are not worn then this should be done thoroughly. But most important is the handling of pus cases and then doing major surgery. We make it a practice not to spay or castrate either dogs or cats if a pus case has been treated bare-handed less than twenty-four hours previously.

The animal is placed on the table and secured by straps to each leg. The operative area, which is the median line, is washed with germicidal soap and shaved. It is then cleansed with ether and lastly painted with tincture of Methaphen. The patient is drowsy from the hypnotic administered some thirty minutes before and does little or no struggling. After the operative field is prepared we induce surgical anesthesia by using U.S.P. Chloroform. Chloroform is not so dangerous as some believe, but there are certain precautions that must be taken. First, be sure that the chloroform has not been in an open bottle and likewise make sure that it is U.S.P. for anesthesia. We do not use chloroform from large bottles, buying nothing larger than the four-ounce size and preferaby the one- or two-ounce size.

Saturate a piece of cotton with the anesthetic and place in the cone and adjust the latter snuggly over the patient's nose. Watch the respiration and the heart. The anesthetist should sit on the left side of the patient, hold the cone with the left hand and keep the right hand constantly on the animal's chest, feeling the heart beat. If more than one animal is to be anesthetized in succession, *saturate a new piece of cotton for each animal.* Generally very little chloroform is needed to produce surgical anesthesia in patient properly prepared by the preliminary soporific.

Surgical Technique

When our patient is asleep we proceed with the operation. The table is tilted, a boiled sheet is placed over the shaven area and fastened at the upper corners to the hair with artery forceps. An opening is cut into the sheet directly over the site of the incision. The skin is incised with a scalpel, then this instrument is discarded, and with a sterile scalpel the muscle and peritoneum are divided. Forceps are attached to the cut edges of the peritoneum and muscle, one on each side. These are held by an assistant. Holding outwardly on them will hold the incision open so the operator has no difficulty in locating the horns. If the patient begins to stir and a prolapse of omentum or intestines is feared, the assistant simply crosses the attached forceps and the opening is closed. This in itself is a very handy feature. The next step is to withdraw the uterine horn. A blunt hook is used. With a little practice one can readily tell by the feel whether he has the horn or the bowel. When the horn is picked up it is followed down to the ovary, and the thumb and forefinger are placed over the latter and a curved artery forcep is placed beneath the organ.

The assistant releases the incision forceps and takes the one attached to the broad ligament, with a slight upward tension the ovary is placed in position for the operator to get a ligature underneath the forceps. This ligature should be placed and fixed securely. The ovary is removed by severing the broad

ligament between the forcep and organ. Another forcep is placed on the uterine horn just back of the union of the fallopian tube. A fixed ligature is placed posterior to the forcep and the horn severed anterior to the forcep, thereby removing the ovary and fallopian tube.

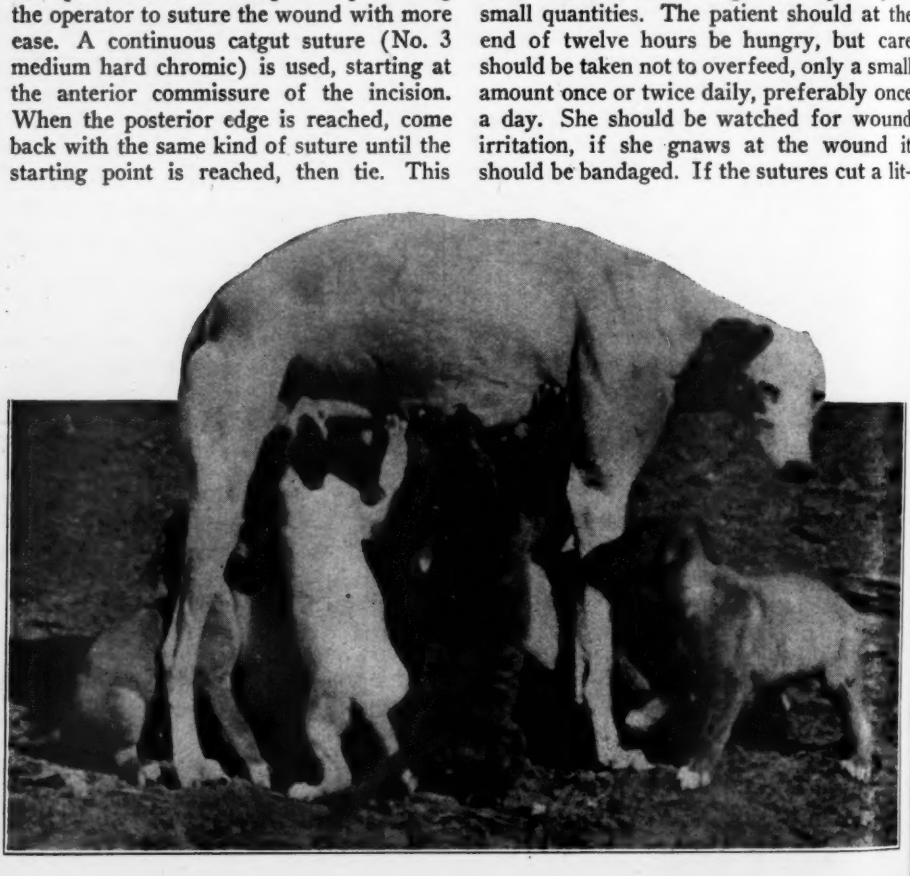
The stump is now returned to the peritoneal cavity and the other horn located and ovary removed in a similar way. When both horns have been returned to the peritoneal cavity, the edges of the incision are examined carefully to see if any fat tissue (omentum) is attached. If there is any, it should be broken down, because if allowed to remain it may work into the incision and start a prolapse.

The assistant again picks up the incision forceps and holds them upward, permitting the operator to suture the wound with more ease. A continuous catgut suture (No. 3 medium hard chromic) is used, starting at the anterior commissure of the incision. When the posterior edge is reached, come back with the same kind of suture until the starting point is reached, then tie. This closes the muscle and peritoneum with a *double* continuous suture. Paint the wound with tincture of Metaphen and close the skin with either a continuous or interrupted sutur of cotton or linen.

After Care

When the animal is to be kept in the hospital a bandage is not required. She is merely placed in a clean cage and not permitted to leave the ward for five days. It is our practice not to let the kennel help handle these cases. The operator takes care of the case until it is discharged. So many kennel men do not have the interest in the case and do not realize what a little rough handling might do.

Food is withheld for twelve to twenty-four hours, but water is given frequently in small quantities. The patient should at the end of twelve hours be hungry, but care should be taken not to overfeed, only a small amount once or twice daily, preferably once a day. She should be watched for wound irritation, if she gnaws at the wound it should be bandaged. If the sutures cut a lit-



tle it is sometimes beneficial, because a drainage is established, whereas if healing is too complete a collection of serous fluid will form and a drainage must be made.

At the end of five days the skin sutures are removed and the patient permitted to go home. The owner is cautioned to prevent the animal from exercising too strenuously for a few days, also she should not be subjected to too cold a temperature. They are furthermore warned not to feed a full ration for at least a week.

Cats are operated with the same technique and after care as the dog, with a few exceptions: First, do not give the cat the morphine preliminary anesthesia; second, give ether instead of chloroform; third, be sure that the skin sutures are securely tied, because a cat can easily untie a square knot by continuously licking it; fourth, feed sparingly and warn the owner to do likewise for a week after leaving the hospital.

Castration

In castration the dog's scrotum should be shaved and the skin treated as above mentioned for spaying. Local anesthetic generally suffices. This is accomplished by injecting a 2% procaine solution or some other good local anesthetic subcutaneously on the ventral portion of the scrotum and also depositing 2 cc or 3 cc into and around the spermatic cord. After four or five minutes the testicles can be removed without pain to the patient.

We use a sheet for castration the same as for spaying. It is a very simple matter to have a boiled sheet about the size of a man's handkerchief, make an opening just large enough through which to slip both testicles. Secure the sheet at each corner with forceps. This precaution is exceedingly valuable in long-haired dogs and cats.

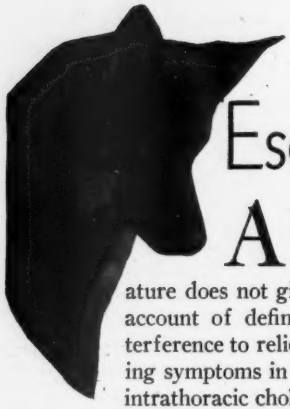
The technique of castration in the dog and cat is the same as with any other animal with the exception of ligation of the vascular portion of the spermatic cord. Controlling hemorrhage by ligation is the only sure way of preventing a loss of blood from castration. I am well aware of the fact that only a very small percentage of castrated animals die of hemorrhage, yet I have seen it happen, so it is well to be safe in all cases. And furthermore, it is very embarrassing to a practitioner to present a blood soaked and smeared long-haired animal to its owner.

The castrated dog should be kept in a clean, comfortable place, allowed limited exercise and given a limited diet, with fresh water *ad libitum*.

Cats are castrated much the same as dogs with the exception of anesthesia. Cats take ether with such ease that it is better to give them a general anesthetic. Sterile instruments and cleanliness must be emphasized even more with the cat than with the dog. It is not uncommon to see cats have peritonitis as a sequela of castration. This may be avoided easily by cleanliness and by making sure there is no pus-discharging wound anywhere on the cats' body. A veterinarian should never castrate a cat while he is treating bacillary necrosis in the same animal. If he does, it is not uncommon to see the *Actinomyces necrophorous* transferred to the scrotal wound and from there ascend rapidly into the peritoneal cavity.

Cats do not as a rule remain in the hospital over twenty-four hours after castration. therefore the owner has most of the after care. We instruct him to keep the animal in a clean place for at least a week, and not to overfeed him. If his diet is not limited, he will very likely be returned in less than a week with a pronounced case of intestinal toxemia, which will manifest itself by vomiting and great prostration. The cat is a highly nervous animal and many of them presented to us for this operation have never been a great distance from home. This nervousness alone will inhibit proper elimination, and then if he is fed heavily it will aggravate the injury. The owner should be instructed to watch elimination.

These are only two of the common surgical operations that are frequently presented to the small animal practitioner. Yet they are not so common that we may get into trouble over them. One prerequisite of good surgery is cleanliness and it certainly behooves every veterinarian, if he is expecting the best results, to be clean about his work and use none but sterile instruments.



Intrathoracic Esophageal Obstruction

By EDWIN R. BLAMEY, M.R.C.V.S.
New York, N. Y.

A SEARCH of the available veterinary literature does not give any detailed account of definite surgical interference to relieve the distressing symptoms in dogs caused by intrathoracic choke. Usually the reader is advised to treat stubborn cases by the use of emetics to bring up the obstructing mass, or to attempt to force it downward by the use of a probang. When these methods fail, resort is had to gastrotomy. Usually the operator is warned to use the utmost care in removing the foreign body especially when drawing it through the diaphragm because of the danger of injury to the pneumo-gastric nerves which may cause the death of the patient.

In the cases under consideration it was decided that the operation to remove the foreign bodies could be accomplished with less danger and greater chances of success if laporatomy and gastrotomy were avoided.

THE usual typical symptoms of intrathoracic esophageal obstruction were presented and were identical in both cases. The animals were eager for food, and ate immediately, food which was offered them. Almost at once there was a strained expression. The head was drawn down and neck contracted. The thorax expanded and respiration was greatly disturbed. This was followed by an expulsive effort which resulted in the bolus of food being vomited.

This bolus assumed a "sausage" shape and consisted of the food swallowed (raw meat chopped or in small chunks) with a considerable amount of thick mucous. In one case in which a bone caused the obstruction, there was also considerable blood. In the other caused by a segment of a rubber composition ball, there was some fetid detritis.

Fluid foods were swallowed and passed the obstructions rather freely and did not cause the symptoms of distress produced by solids. However, there were symptoms of digestive disturbance in both cases. These were especially noticeable after fluid food had been injected.

Case No. 1.—The first patient was a Scottish terrier male, two years old, extremely emaciated and dessicated. The diagnosis was made on the symptoms presented. It was confirmed by the passage of an esophageal sound; later by X-ray. An attempt was made to dislodge the obstruction downward by pressure with the probang, and by traction upward with a long-handle, small-looped, human placenta forceps. These failed.

The patient returned home at the request of the owner, and was fed on milk, raw eggs, strong broths, and water. After two weeks' period, the dog was returned in a much improved condition for a second X-ray. The operation was decided on and carried out at once.

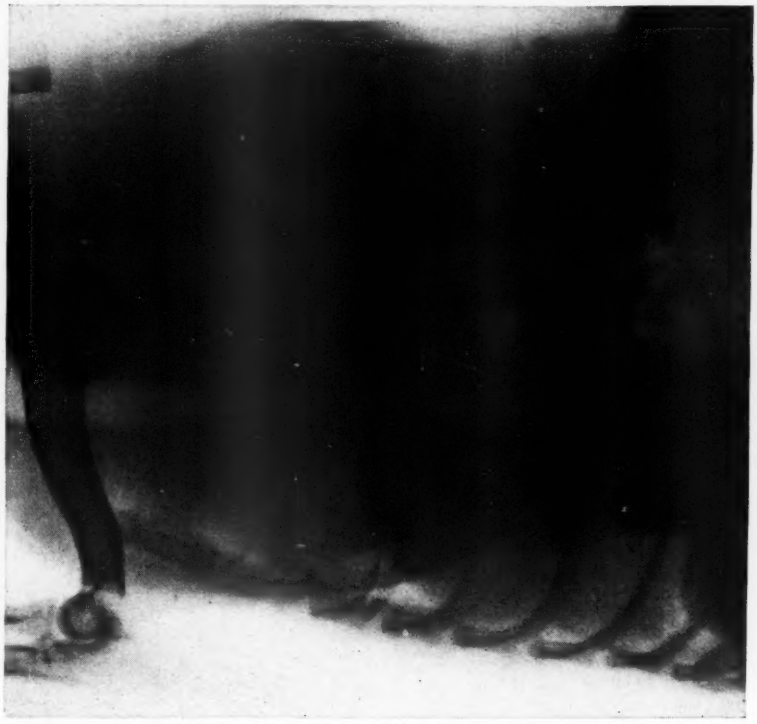
AFTER the usual general preparation, the hair on under side of the neck from the mandible to the sternum was removed with a close clipping machine. The whole operative area was painted with tincture of iodine. The dog was anesthetized deeply with ether in order that there should be no reflex vomiting. The patient was placed on its back with the head extended. An incision was made in the skin commencing at the junction of the middle and lower thirds of the neck and extending forward about three inches. This site was chosen because the esophagus is nearest the skin at this point. Therefore there was less tissue damage.

The sterno-hyoideus muscle fibers which

run longitudinally were split at the mid-line without causing any serious hemorrhage. A retractor was used to pull the left side outward. The esophagus was isolated carefully by blunt disection (handle of scapel and dressing forceps). It was found to the left of the trachea and slightly deeper. Great care was taken to avoid injury to the carotid artery, jugular vein, the vagus and left recurrent nerve. The esophagus is recognized by its pale pink color.

The esophagus was elevated and incised lengthwise for about two inches on its ventral or exposed surface. The edges of the wound and the posterior angle were held by tenaculum forceps as soon as the hemorrhage stopped. These fixed points enabled the assistants to dilate the incision.

A LONG narrow bladed speculum was passed into the incision in the direction of the obstruction, and the esophagus dilated. A small electric diagnostic light was introduced and the obstruction could be seen clearly *in situ*. The dilator was opened to give more room. A small-looped, long-handled pair of placenta forceps were introduced. The obstruction was seized and after several attempts withdrawn. Some care had to be exercised in the passage between the first pair of ribs. Swabs of sterile cotton moistened with an antiseptic were introduced by means of long-handled forceps and applicators, and the injured lining of the esophagus made as clean as possible. Care was taken to ascertain that free passage existed to the stomach.



Case No. 1. Arrows point to obstruction lodged in the esophagus.

The speculum was withdrawn. The incision was washed with a chlorine antiseptic. The epithelial lining of the esophagus was approximated by interrupted sutures of 00 10-day chromic catgut. The wound in the muscle of the esophagus was closed with a

continuous suture of the same material. A small intestinal needle and a needle holder were used during these stages. The muscle wound was stretched moderately lengthwise to facilitate suturing. The esophagus was returned to its normal position. The wound was cleansed again, to avoid possible contamination during withdrawal of the obstructions. The halves of the sterno-hyoideus muscle were drawn together with three interupted sutures of No. 1, 10-day chromic catgut.

Finally the skin was sutured with No. 1,

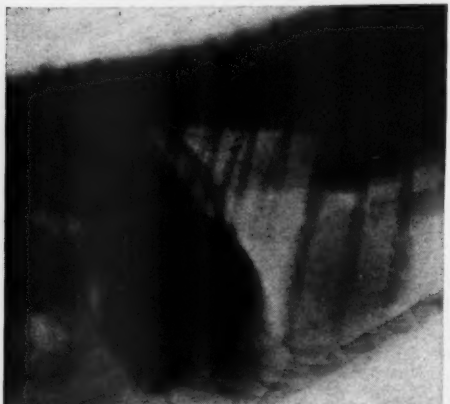


Fig. No. 3. Showing bone lodged in the esophagus.

10-day chromic catgut sutures with an opening about half an inch in length left at the posterior commissure for drainage if necessary.

A dry pad of sterile gauze was applied; it was backed with two layers of the best cotton and held in place with a two-inch gauze bandage. At the end of twenty-four hours the dog was given his first drink of water. At forty-eight hours the dressing was changed and a small amount of drainage noted. This was wiped off and new dressing applied. There had not been any elevation in temperature at any time before or after the operation. The skin sutures were removed on the fifth day at which time the wound had practically healed. A light dressing was maintained for about two weeks to prevent the patient from scratching the wound. Liquid food was continued for about a week. Then semi-solid food was given. Two weeks after the operation the patient was on a full normal diet.

THIS case remained under observation for almost a year before the owner moved to the West. During that time there was not the slightest evidence of constriction of the esophagus.

The longitudinal incision into the esophagus is contrary to modern technic, but it appears to be a safer procedure when working comparatively short handed as is usually the case in veterinary surgery. In this case and the one to follow I was assisted by Dr. C. G. Rohrer of New York and two laymen who are well-trained as nurses.

Case No. 2.—This is almost parallel with case one. The patient was a Scottish terrier

Case No. 2. Showing obstruction lodged in the esophagus.

female about a year old. She presented the same symptoms but was in far better condition, because she was presented for examination immediately when she showed symptoms of distress.

The same technic was employed except

that the incision in the skin and muscle was made about three-quarters of an inch to the left of the middle line in order to avoid the retraction necessary on the previous case. The obstruction had caused some trauma to the esophageal wall and was wedged in a partial transverse position. It was removed by an alternate gentle traction and repulsion while held lightly with the looped placenta forceps.

The closure of the wound was identical. In this instance there was an absolutely uneventful recovery. The patient was dismissed in ten days. She has been seen on several occasions since. To the best of my knowledge she is as normal today as she was in late 1930 when the operation was performed.

Remarks.—These cases are cited in the hope that they will establish a clearer technic than I have been able to obtain from textbooks. I do not claim that it is the only way to relieve the condition. The first case yielded a large segment of rubber composition ball. It was recognized as part of a ball which had been missing but which was thought to be too large to be swallowed. Hence there was no fear when the dog played with it. The second was a large four-sided flat piece of bone with acute angles forming sharp points. This would have been digested if it had not become wedged. The cases serve to illustrate the unnecessary risks taken by the owner of strong-jawed dogs. It has been my custom for years to protest to my clients against the use of rubber toys and bones because of the potential trouble they represent.

I wish to thank Doctor Rohrer for his cooperation and assistance in these cases. Also my thanks are due to Rendiner and Schlesinger for their X-ray work and to Doctor Rohrer's staff for their assistance.

Figure No. 3 is presented because it shows clearly how large a bone may be swallowed by a dog. In this case the dog was a full grown fox terrier. The owner objected to surgical interference and the dog eventually died.

Hydrothorax in a Cat

This patient was one of two, nearly full grown, cats which were kept in the cellar of a store. The owner found this cat lying in a corner one morning very depressed and breathing with difficulty. The day before both cats had eaten and appeared normal.

When first seen, the cat was very dull and somewhat cyanotic. He breathed rapidly and with great difficulty. Pain was shown on palpation over the thorax. Auscultation of the thorax revealed nothing except increased viscular murmur. The cat died suddenly from struggling when an atropin pellet was administered for the purpose of aiding respirations.

Autopsy showed that the thoracic cavity was filled with a clear fluid, and that the mediastinal tissue was greatly thickened with fluid. There was also a heavy infestation of ascarids.

Ithaca, N. Y. H. L. Brown.

Laceration of Achilles Tendon

This animal was a three-year-old German Shepherd dog with a wound and complete laceration of the achilles tendon. There was a wound through the skin above the hock and over the tendon. The tendon was cut and separated about half an inch. This was evidently due to a dog fight. The animal could not put any weight on the leg without putting the metatarsus flat on the ground.

Treatment.—The wound was cleaned every other day with antiseptics and banaged with a splint extending from the foot pads to well above the hock. This held the hock joint in position so that the dog could use the leg to some extent. The tendon was not sutured for the reason that it was intended to overcome the infection and then suture the tendon by an aseptic operation.

Within two weeks the tendon started to heal without being sutured. The dog was sent home for a week with the splint and bandage. When the dog returned at the end of the week, the tendon was firmly united

Ithaca, N. Y. H. L. Brown.

Diseases of the Foal*

MORE mares foaled in New York State last spring than in any year for a decade and still more were bred to foal next spring. Among countless other changes that the motor truck has brought about is one in the breeding of horses. It is a common sight in our country to see stallions transported by truck, and whereas formerly the mare was brought to the stallion, the operation is reversed now.

In discussing the treatment of foals, one may take up first treatment of the cord at birth. We prefer not to have it ligated. If the ligating is done by the owner, as is usually the case, the probabilities are that it will not be cleanly done and in any case, it prevents retraction of the blood vessels and the escape of fluid. If the owner is to do the work, we prefer that he merely disinfect the cord with tincture of iodine.

RETAINED meconium is the cause of considerable trouble in the foals. It may or may not cause colic, but if in any case the foal does not get rid of it, it will result in death. For its removal, we employ a routine injection given through an ordinary horse catheter which, with care and patience, can be worked well forward into the intestine.

NAVEL infection in foals may be due to any one of the five organisms, Streptococci, *Escherichia coli, Shigella viscosa, Salmonella abortivo-equinus* and *Corynebacterium pyogenes.*

The disease is sometimes characterized by local swelling, sometimes by abscess formation and often by the discharge of pus and urine through the urachus. The foals are sometimes diseased at birth; such foals usually are called "sleepers," or the attack may occur some days later. Particularly is this the case with streptococcic infection. When the foal is 10 to 14 days old there is an increase of temperature, pulse and respiration and then or soon afterward, the joints may be enlarged, particularly the stifle and often the hock and shoulder joints. Even earlier than this the foal may be noted to be not quite up to par, not so anxious to eat as the normal foal is, nor so playful.

If we know the specific infection, and we usually do not know it, a serum may be used. A hot pack to the region of the navel may localize the infection. If the disease is due to infection of the colon bacillus, the foal usually dies quickly and on farms where this has occurred we give bacterins to the mare before foaling.

Along about the eighth or ninth month in the period of gestation we take a swab from the vagina of the mare and from this make our bacterin. We have also used neoarsphenamin in the mare but have reached no conclusion as to its value.

The best of all treatment for navel ill is blood transfusion, using the dam for

*Notes from an address by J. N. Frost, Ithaca, New York, at the Eleventh Annual Post-Graduate Short Course for Veterinarians, Michigan State College, East Lansing, January 22-26, 1934.

donor. In fact this is a valuable treatment for any infection in the foal and I now give all foals at birth 50cc of the dam's blood. Where this amount is given I merely use a large syringe, withdraw the blood from the jugular of the mare and inject it into the jugular of the foal. In cases of navel disease, however, up to 500cc should be given daily. In giving this quantity, I prefer to give it to the foal hypodermically. Direct transfusions of more than a syringeful of blood is not very practical in the foal, since it is hard to control and if sodium citrate is used to prevent clotting, the patient is apt to receive too large a dose of this agent.

Another treatment for the prevention of navel ill in foals and to cause the foals to be more vigorous is the administration of iodine to the mare during the latter months of pregnancy. One 10-grain tablet of potassium iodid is dissolved in the drinking water once a week.

SCOURS in foals is commonly seen on the ninth or tenth day. This is sometimes due perhaps to an altered condition of the mare's milk at this period, since she is usually in heat at this time or she may be taken away to be bred and when she returns the colt eats too much.

Eating of straw and filth by foals may occur early or even later and is prone to result in digestive disturbances and scours. It can usually be stopped by giving the foal a tablespoonful of mineral mixture once a day. We ordinarily use precipitated calcium phosphate for this purpose.

We have had some trouble with scours occurring in older colts, along about the age of four months. The feces would become almost like water. The usual treatment gives only temporary relief. By a process of elimination in several cases, we decided this was due to chlorine or chlorine salts in city water. The animals were given well water and the trouble disappeared. Some of them put back on city water had an immediate recurrence of the diarrhea.

Many foals at birth and some after, are noted to be over on the fetlocks. Such animals are usually suffering from a slight hydrocephalus. Many contracted tendons recover spontaneously. Others require bandaging and once in a while it is necessary to cut a tendon.

FAILURE of the anus to develop is rather a common occurence in certain areas in our state. The foal will be all right otherwise. This condition is easy to treat if there is a bulging of the perineum at the place where the anus should be. Simply make an x-shaped incision over the bulge. Be careful, however, not to incise the sphincter. In cases where the rectum does not extend to the skin but is partially or wholly undeveloped, the operation is far more difficult and may be unsuccessful.

FAILURE of the urachus to close in the filly is usually due to infection. In the male foal it may be due to infection or to a blood clot in the bladder which has blocked the urethra. In such cases it is essential to see that the urethra is open before closing the urachus.

The treatment for persistent urachus is rather simple. Dip a swab in iodine and press out the excess, then with long dressing forceps pass this swab into the urachus about to the bladder. The urachus may then be burned slightly at the navel with silver nitrate and allowed to close by swelling, or a suture may be used.

RUPTURE of the extensor pedis tendon in foals occurs sometimes in one front leg and sometimes in both. The cause is probably nutritional. About all that one can do in this condition is to bandage the well leg, if only one leg is affected, and in every way possible protect it from a similar accident. If only one leg is affected, the foal will soon learn to handle it without difficulty, snapping it forward when it walks. Such animals make fairly good work horses. They are not sound, of course, but at the walk they learn to handle themselves very well. Although this condition is referred to as a rupture of the extensor pedis tendon, it usually is not a rupture of the tendon,

but a separation of the tendon from the muscle just above the carpal joint.

PARESIS is often seen in colts. At the time they are a year old or a little later they get wabbly behind. There are two causes for this condition, rickets and aneurisms in the mesentery artery. Measures for prevention and treatment are obvious.

GOITRE is not uncommon in colts in some districts. It is usually accompanied by other evidences of malnutrition. The prevention lies, of course, in giving the mare iodine during the last four or five months of gestation. A 10-grain tablet of potassium iodid once a week is sufficient.

ALONG about weaning time is a critical period in a foal's life. In most farm horses, the foals are weaned about the time they are taken off of grass in the fall. At this time they are housed away from the sunlight, deprived of their mother's milk and grass and placed on unaccustomed feed. Then, too, they are probably suffering from parasites accumulated during the summer. Due to this combination of unfavorable circumstances, they are prone to develop rickets. The first symptom of rickets in foals of this age is enlargement of the stifle joint. The joint capsule contains more liquid than normal. This fluid forces the patella upward and may cause it to ride on the external ridge of the femur as the animal walks, or it may lock on the ridge and render the leg immobile. The pressure on the external ridge of the femur soon reduced the height either by erosion or preventing its development and we have an animal ever afterwards prone to become "stifled." It is very important that foals be not stunted at weaning time. A race horse man that I know keeps before his foals at weaning time a thin slop made of ground oats, ground barley and lime water and the foals eat a lot of it. In fact they use it instead of water. This man does not have any shrink in his foals at weaning time and is never bothered with rickets.

Bone Diseases of the Horse*

The bone diseases are rickets and osteomalacia. There is little if any difference between these two conditions other than the fact that in rickets the bones have never had sufficient mineral elements, whereas in osteomalacia they have lost these elements. Spavin, ringbone, sidebone, navicular disease and various and sundry exostoses are but so many local evidences of general skeletal disease, rickets or osteomalacia. Even diseased teeth may be referable to the same cause. For example, 10 per cent of all diseased teeth in our clinic are fourth molars. The fourth molar in the horse is developing at weaning time, a period at which a great many foals suffer from rickets. I believe the great prevalence of disease of the fourth molar in the horse is due to faulty development, the result of faulty nutrition at weaning time.

About 90 per cent of our surgical-exercises horses have suffered from navicular disease, although more often than not there is no record of lameness. Eighty-five per cent of the cases of spavin or navicular disease or ringbone that we see at the College Clinic are suffering from the other conditions also. In our treatment of these conditions, spavin, navicular disease and ringbone, we have long been treating symptoms, not the diseases.

We do not fire near the number of animals that we used to. It doesn't do any good to fire many cases. In some cases, however, one is forced to do it because the owner insists that it be done. If one declines, someone else will be found who will fire them.

Every practitioner must have noted the commoness with which foals suffer from soreness of the stifles at weaning time. Foals that are taken off the pasture, weaned, confined inside and likely wormy all at one and the same time, are prone

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to get straight behind. That is because the stifles are sore and the animal straightens the leg to ease the pain. So pronounced is this that sometimes one sees foals markedly higher behind than in front. The hind legs have the appearance of being too long for the front legs. One sees the same thing in old horses worn out in the city and sent to the farm.

For about five years, in navicular disease, we have been giving general treatment to increase the intake of calcium and treating the condition locally by injecting the navicular bursae. Formerly we used an ounce of Lugol's solution and gycerin, but more recently we have been using an injection of calcium glycerophosphate, seven and one-half grains to the ounce of water. The foot should be anesthetized and the animal permitted to exercise. The best anesthetic to use for this purpose is quinine and urea hydrochloride. This should be injected over the plantar nerves. The anesthesia lasts about four days and in this time the pain in the bursae will have disappeared.

It is well to shoe these animals to give them a roller motion in breaking over the toe. A bar on the shoe also is advantageous, but the ordinary bar shoe, the bar of which projects forward and brings pressure directly over the navicular bone, should not be used. A good way to prepare a shoe for this condition is to hammer out the heels somewhat thin, curve them inward until they touch and put the shoe on with the original front to the rear, to be used as a plate or, we may add, four calks, two well forward and two at the usual site of the hind calks. What was originally the toe of the shoe then becomes what we call a posterior bar and can be fitted to bring frog pressure well behind the navicular joint. It pays to keep the navicular foot soft. If the heels are contracted as they usually are the walls should be thinned until they give readily under pressure of the thumb. They should be thinned on the inside also. Then a mixture of crank case oil, oil of turpentine and tar can be painted on the foot and over the coronet two or three times a week. This application is just irritant enough to cause a rapid growth of hoof and keeps the hoof from drying out and geting hard. When it grows down again it will be noted to be from three-fourths of an inch to an inch wider at the heel than formerly.

For brittle feet we use ordinary glycerine painted on frequently.

In spavin the disease begins deep in the bone and gradually extends to the surface. There may or may not be an exostoses at the surface. Where it is deemed desirable to use a blister for any deep seated condition, we always use what we term an internal blister. From 2 to 5cc of Lugol's solution are injected in two or three or four places. The effect is far superior to that produced by a blister applied to the surface. Often one such injection is sufficient. More than two are not often required, but sometimes we have had to give as many as four. The injections should be made at intervals of about four days or when the swelling begins to subside.

Prevention and Treatment of Mastitis*

THE streptococcus is the principal factor in mastitis in cows. There are other contributing or predisposing factors, however, such as cold, traumatism, a high protein feed and all conditions that lower the resistance of the udder. These latter conditions, however, do not of themselves produce mastitis. We once tried to induce mastitis with a high protein ration. The animal lived on cottonseed meal. There was no effect on the udder. After about the year the animal was destroyed and neither macroscopically or microscopically could any injury be found as a result of the feed. We then made the same experiment with gluten meal, with the same result.

*Notes from an address by J. N. Frost, Ithaca, New York, at the Eleventh Annual Post-Graduate Short Course for Veterinarian, Michigan State College, East Lansing, January 22-26, 1934.

When this was tried in slightly infected herds, however, many of the animals quickly came down with mastitis.

Infection may reach the udder through the blood stream or the lymph, through wounds or through the teat canal, but the latter, I think, is far the most important port of entrance of infection. The spread of infection in a herd is related to the way it gets into the udder. Pneumonia is commonly seen in connection with acute mastitis, particularly if metritis is also present.

Mastitis in heifers is often unobserved until they freshen, then it is discovered that one or more quarters of the udder have been destroyed by mastitis. This is due to permitting calves to suck one another.

IN examining a cow for mastitis the udder should first be inspected for symmetry. The two front quarters should be the same size and shape and the same applies to the two hind quarters of the udder and also to the teats. Both front teats and both rear teats should be of the same length and approximately of the same size.

For a palpation of the udder it must be milked out clean. One can tell little about the udder of springers and not a great deal more about the cow in milk if the udder be tightly filled.

We divide the udders in a herd into four classes, based upon the physical examination, brom-thymol test, production and previous history.

There is hardly any work that a veterinarian can render a dairy farmer that pays him better than this classification of his herd and the control or elimination of mastitis infection.

WASHING the udders often does more harm than good and sometimes it is disastrous—about the best means that can be devised of carrying infection from one udder to another.

A second stripping after the regular milkers are through is a valuable practice. In the first place, it puts the milkers on record, it detects and eliminates the careless milkers and inclines the others to be extra careful. Furthermore, enough milk is obtained by this means to defray the cost of doing it, and hardly anything else favors so much the development of mastitis as a failure to milk the cow out clean.

Dipping the teats in a chlorine solution after milking is probably a valuable practice. It replaces the drop of milk that is left on the end of the teat with a drop of disinfectant solution.

Scraping the rear part of the floor after milking is probably a useful procedure. At least some veterinarians and some dairymen think this practice is very beneficial. Almost always some milk is spilled during milking and if this and the litter is scraped away and fresh bedding is placed over the part, there is less danger of infection reaching the udder when the cow lies down.

THE character of the stall is important in the prevention of mastitis. We use stalls with a 4x4 scantling across them, two feet from the rear. This saves bedding and keeps the cows cleaner. These stalls have three bars across in front but no stanchion. When the cow eats she reaches under the lower bar standing well forward. When she raises her head she must step back and stand just in front of the manure trough. She will soon learn when she lies down to move forward and lie in front of the 4x4.

It is a good idea also to have a cement partition, about six inches high, between the stalls. It keeps cows from extending their legs into their neighbor's stall and when getting up, treading on the teats of the cow next to them. If she extends her leg over this partition it will be held off the floor and she will withdraw it before getting up.

As has already been mentioned, preventing calves from sucking one another will prevent mastitis in heifers before calving. It isn't necessary to keep calves sepa-

rated for more than a short time after they are fed to prevent them sucking one another.

THE treatment of mastitis has not changed much. Doctor Law in his book in 1874 recommended frequent milking. It is still regarded as good practice. Hot and cold applications were recommended. We still use them. Liniments and massage were recommended. They are still good. Change of feed and cathartics, likewise standbys in Doctor Law's time, are equally valuable now.

We like to use a suspensory bandage. It is convenient in applying the hot or cold application, helps to establish normal circulation and gives the animal great relief. On a normal cow we are able to increase the production of milk 10 pounds a day by using a suspensory bandage; simply by improving the circulation in the udder. I prefer cold to hot applications, principally because I think the former is more likely to be carried out. There is no advantage in a lukewarm application and that is what one's hot application is quite apt to be when applied by the dairyman.

One often sees cows with one quarter practically dry, just a little stream can be obtained from this teat. Ninety per cent of these cases will sooner or later have infection in the other three quarters. This practically dry quarter is a dangerous thing. In such cases the teat should be cut off, up close to the udder. When left open in this way it will soon drain and heal and all danger of mastitis infection from that source is ended.

THE milk inspection regulations of some cities prohibit the use of milk from three-teated cows. However, there is no objection to such animals when the teat is removed and the wound healed.

One can usually start an argument by discussing the bacterin treatment of mastitis. I do not know, but I have thought that I have had some good results from the use of bacterins. I prefer to give them before the cow freshens; about three doses ten days apart has appeared to me to be beneficial.

Michigan Colts Bring Highest Price Ever Paid

Twenty-four grade draft colts coming 3 years old within the next four months, sold at auction for cash at East Lansing, Michigan, February 28th to Michigan farmers, brought $4455.50, an average of $185.65 per head.

They were gentle, broken to harness, and had been driven to wagon or sled, in pairs and in multi-hitch teams, three times a week for eight weeks, but were sold as "green broke."

The experiment was to determine the rate of growth, cost thereof, and value of colts grown out on different planes of nutrition.

The eight colts in Lot 1 were given all the grain, hay, oat straw and pasture they would eat, and sold for an average of $209.37 each.

The eight colts in Lot 2 received one-half as much grain as the first lot, were given a limited amount of hay, but all the oat straw and pasture they would eat. They sold for an average of $193.43 each.

The eight colts in Lot 3 were given one-fourth as much grain as the first lot, a limited amount of hay, all the pasture 10 acres of land could furnish (same area as the other colds had), and all the oat straw they would eat. They sold for an average of $153.43 each.

All ran outdoors on pasture for the full period of the experiment. A simple shed of boards, open to the south, costing $60.00, was available to each group of colts, but was seldom used, even in the coldest stormy weather.

The colts in the second lot were apparently as large as those in the full fed lot, but not as fat, and as they sold for only $17.08 less per head they were decidedly the most profitable.

The highest price paid was $287.50 for a bay brown filly out of Lot 2. The second highest price, $282.50, was paid for a chestnut filly out of Lot 1.

The twelve fillies sold for an average of $218.33, and the twelve geldings for an average of $152.50 per head. This difference of $65.18 a head represented the farmers' estimate of the breeding value of the fillies, since as work animals there was no difference between them and the geldings. It shows a keen interest on the part of Michigan farmers in horse breeding. At similar sales in previous years the fillies averaged only about $15 more than the geldings.

The colts in Lot 3 were showing slight, but unmistakable signs of rickets; had they been kept much longer on the inadequate diet they would have been ruined for work animals. Their complete recovery is doubtful.

Wayne Dinsmore, Secretary of the Horse and Mule Association of America, was an interested spectator at the sale and said the colts brought more money than any similar number of grade draft colts of this age ever brought so far as his knowledge goes—back over 40 years.

Bloat in Cattle and Sheep

By E. T. BAKER,
Moscow, Idaho

SPECIAL FLASH: AUTHOR THREATENED!

While engaged in writing this article the author was threatened. A client threatened to pay his bill when he gets the money.

As he is only three years behind in his taxes and interest on two mortgages; with an invalid wife, nine children and two sons-in-law to support, we feel quite optimistic.

With the money he expects to get from the government for not raising wheat, and for his sows practicing birth control; with two boys and a team on CWA work; three more in CCC camps; all the girls picking peas and the sons-in-law playing rummy, he figures the family ought to do well this summer.

After they buy a new car, some hunting licenses, and take a trip to the Chicago World's Fair, he said he thought he may be able to pay something on his 1931 veterinary bill.

The outlook is very encouraging!

FOR some reason or other we see very little literature on the old-fashioned subject of bloat, particularly in cattle and sheep.

Of course, tympanites is the four dollar word employed by the scientific, but when a farmer has a cow swelled up like a poisoned pup, he merely uses the short, easily pronounced, one syllable word—bloat.

We have spent some years in learning how to handle this disorder with success and comparative ease. Not that we consider bloat a trivial ailment by any means, but our present line of treatment is much better than what we formerly employed.

We live in a pronounced "bloat section," for our principal forage is non-irrigated alfalfa, some sweet clover and a little red clover. Depending on the season, we may expect to see grass bloat from April until the snow covers the ground in November. Many of our farmers are seeding winter wheat for cattle pasture, and this often causes trouble.

About July we begin to see the acute indigestion type of bloat, complicated with founder, paralysis and sudden death unless promptly treated.

ANOTHER element that enters into the subject is the question of pregnancy. Due to living in a university town, many of our cattle owners like to have their cows freshen along in late summer or early fall, so as to be able to supply milk to the college students.

Therefore we may have serious trouble in cows heavy with calf, that otherwise would not be difficult to handle. Too

many green apples, or a big feed of almost ripened grain, such as wheat or barley, or green corn, may cause an acute founder with resulting paralysis.

In winter we have a dry hay bloat, complicated with impaction of the first stomach, or the omasum may be involved, causing one of those long drawn out cases that often die getting well. We have posted several of these and found the manyplies almost the color and consistency of black carbon paper.

For our own convenience we class our cases as follows:

1. Mild bloat.
   a Indigestion type.
   b Overloading-of-rumen type.
2. Serious bloat.
   a Grass type.
   b Founder type.
   c Forage poisoning type.

Formula Employed

We will first explain our lines of treatment by giving two useful formulae:

Bovine laxative—Use a ten-quart granite bucket (do not use aluminum), half fill with boiling water. Stir in five pounds of granular sodium thiosulphate and two and one-half pounds sodium chloride. In a few minutes all will be dissolved. Add a five-pound pail of dark karo sirup; one heaping teaspoonful of saccharin, and eight ounces of aromatic fluid extract Cascara sagrada. Stir well and fill up bucket with hot water.

This is our vehicle for many mixtures, and if readers will look up the actions of the various ingredients they will see what a palatable mixture it really is. The thiosulphate has anti-fermentive and mammary-stimulant action that we do not fully understand, but know that it does the work.

Colic mixture—Use a gallon bottle, half fill with turpentine colored red. Add eight ounces chloroform, sixteen ounces sulphuric ether, and four ounces oil of eucalyptus in which several ounces gum camphor have been dissolved. Fill the bottle up with turpentine.

The dosage is around one or two ounces for a horse and four to six ounces for a cow. Unless absolutely compelled to by the serious nature of the case, we omit this mixture to cows heavy with calf, and use instead the following:

Aromatic spirits of ammonia mixture—Dissolve one ounce of salicylic acid in four ounces aromatic spirits of ammonia.

To prepare bottles of bloat medicine for cattle owners to keep on hand, we make it up as follows:

In a pint beer bottle, which only holds about eleven ounces, we first crush two rumen tablets (15 grains each tartar emetic and barium, with one-quarter grain strychnine).

In a pint graduate, we pour in six

The wrong way and the right way to cork bottles of bloat medicine.

drachms of antiseptine or any refined lysol for internal use; one-half ounce stronger ammonia, and enough colic mixture to make six ounces. This is poured into the bottle, and it is then filled up with the bovine laxative.

Above all things, use a cork that is large enough to be pulled out with alacrity—not with profanity. Not even a house on fire causes more excitement than a bloated cow, and far be it from us to hinder first aid. This is a simple matter, perhaps, from a theoretical standpoint, but mighty important from a practical one.

For mild bloat we use the rumen tablets and nothing but the bovine laxative, or in more advanced cases, we can add a little of the aromatic spirits of ammonia mixture.

Different Treatment

We have two distinct classes of clients: First, the commercial dairyman who does not want to lose any more milk from a

Indigestion type of bloat.

medicine taste than possible, and who wishes to get his cow back to normal production, and second the family cow owner.

Years ago when we used the formalin treatment, we frequently had a cow lose her appetite for several weeks and almost dry up. Until we developed our present line of medication we had little call for bloat medicine. After we had worked out the above, dairymen began to want a bottle or two to keep on hand for mild cases. As one expressed it:

"I used to dread milk fever and bloat, but since you use that serum treatment on the fever and that stuff for bloat there is nothing to it."

He then added: "Now figger out something as good for garget and you'll be doing something for your country."

Mild Bloat

When we are called to treat a case of mild bloat we usually give a bottle of the bovine laxative first. If a small Jersey, this is enough, but if it is a big, hungry looking Holstein, another bottle may be given six to twelve hours later.

If there is any sign of impaction of the rumen, the patient receives a hypodermic of a quarter grain eserine and the same of lobeline.

Improved white liniment is rubbed over the sides and the animal blanketed. Plenty of lukewarm water is supplied her, or if she does not drink we tell the owner to pour down a gallon or so later on. Whole oats and molasses are suggested as a diet.

The laxative acts as a stimulant on both the digestive and mammary systems. In a few days her appetite returns. When a cow does not eat the owner is much worried about it; when she starts eating he resumes his explanation of how to run the government. Better still, the milk flow begins to come back to normal, and in many cases the owner will report "she gives more than ever."

WE FIRST became acquainted with the actions of sodium thiosulphate from Dr. Sofus Nelson, late dean of the Washington State College, who used it for many ailments of the milk cow with apparently good results. It will clear up clotty or curdy milk better than any other drug we have ever tried, and seems to stimulate the milk flow.

Another good thing, this line of treatment will not "taint" the milk, and in a couple of days, or as soon as the cow returns to normal, the milk is all right for commercial use.

The sirup adds to the palatability, as does also the saccharin. The latter being 550 times as sweet as sugar, seems to disguise the taste of strychnine and tartar emetic, which is very distasteful.

Serious Bloat

When we are called to a bad case of bloat, we first administer a bottle of our

regular bloat mixture, which has already been described. We like Cliquot ginger ale bottles for this purpose, because they contain nearly sixteen ounces, and are slender and convenient to handle.

We like to grasp the cow around the neck and insert our thumb and two fingers in the nostrils, and bring her head around to our left side. We then slip the bottle in the side of her mouth, and, allowing her plenty of time, the medicine is completely swallowed. It requires a

A strong left arm is required for drenching cows.

good left arm, and if the owner can hold the halter on a big cow, half crazy with pain, it will help greatly.

The next thing we do is to slip a stick in her mouth, to start belching, and lead her uphill, so as to relieve the pressure on the heart and lungs. A small manure pile is good for this. Liniment is then rubbed over her sides, and the owner is kept busy trying to work with her tongue.

We like the stronger ammonia for two reasons: First, because it is cheaper than the spirits, and, second, on account of being in an aqueous solution it is very volatile. It is also much stronger than the spirits. Just as "smelling salts" are efficacious in fainting of the human, so is ammonia in acute bloat of ruminants.

The antiseptine or any other refined cresol for internal use acts very promptly in controlling fermentation, while the colic mixture, as its formula would denote is a valuable anti-ferment, carminative and sedative.

In fact, this mixture will begin showing visible results in several minutes. First, the animal belches moderately, and then more frequently.

Second, when the distended rumen begins to "deflate," one can almost see the decrease in size. The labored breathing becomes more normal, and the patient takes more interest in life.

AFTER the bloat has entirely disappeared, there is no danger of a recurrence, for the rest of the medicine goes into action, and the thiosulphate seems quite thorough in the matter. Also, in a couple days the appetite returns, and, better still, the milk flow comes back to normal. A satisfied client is the result.

Unless the bloat has advanced too far it is very seldom we have to use the trocar, but we always have this ready, and we keep a weather eye on her general appearance. When her lower lip begins to hang down, and she wants to kneel or lie down, and it is impossible to get her breath, we waste no time in using the trocar.

Tapping a Cow

While this is a simple operation for the experienced, the novice will learn more in three seconds than he ever believed existed in this or other worlds.

In the first place, a cow, appparently moribund, can kick higher and quicker and more accurately than any animal we have ever seen, and this does not bar a peevish Missouri mule.

For that reason, unless absolutely down, she should be turned against a stall or some shelter where the operator can stand when he "socks" the trocar into her rumen.

Professors may instruct their students to "carefully disinfect the site of incision," and then to cut a small hole in the

hide with a sharp and sterile bistoury, but our experience has taught us a few other things.

The trocar and canula are driven home by one smart blow.

FOR quick action, we carry along in our car a hard oak paddle, one by two inches, fourteen inches long, and weighing around twelve ounces. When we decide to tap a cow, we merely get the cow in a corner, standing up hill, with a post or tree to stand behind, and sock our trocar clear into the hilt by a vigorous blow of this paddle. As the cow "yumps," as Ole Olson would describe it, we hang onto the handle of the trocar, and pull it out; leaving the canula embedded in her girlish form. As the gas whistles out of her, the owner and patient seem equally relieved.

When we get ready to pull out the trocar, we take an old towel and place around the top, and with one vigorous pull, "yank it out." This is to prevent particles of food from getting in between the stomach and muscles, and also, if the cow decides to make a drop kick for a field goal on the seat of our pants, we are not there. We then apply a little red oil to the puncture, and give the owner an ounce bottle to apply twice daily, and in several days the wound is practically healed.

TO make this oil, shave two ounces gum camphor in a good sized mortar, containing perhaps at least half a gallon. Pour an ounce of sulphuric acid over this camphor, and allow to stand for ten minutes. Then carefully pour on a quart of turpentine. The solution will get very feverish and boil and smoke vigorously, but keep stirring with a long glass rod. After it has cooled off, add some red oil color and an ounce of oil of eucalyptus, and stir again. Let stand over night and siphon off next day. We use a two ounce dose syringe for this purpose, and dispense the sediment for sore feet in horses or abscesses after dehorning.

In case the bloat is complicated with impaction of the rumen, such as in the overloaded type, we attach our stomach tube to the trocar and pump in four or five gallons of lukewarm water to which several ounces glycerin has been added. If the cow is quite large, we can add another bottle of the bloat mixture to this water. However, this will give the patient one grain of strychnine, and that is plenty for most cows.

We usually leave some bovine laxative with the owner to give twice a day for several days. This keeps him busy and he forgets to call us up every hour or two. If there is anything we do not care for, telephoning and spinach are two of them.

Rumenotomy

Fortunately, in our practice we have very little occasion to perform rumenotomy. For this we are thankful, for the after care, particularly in summer, is not a pleasant task.

When we do have to perform it, we like to stitch the walls of the stomach together with interrupted sutures of linen thread, and then do the same with the incision.

We then advise keeping the patient in a dark stall for a few days, especially in summer. We suggest feeding plenty of oats, and supply the owner with a powder, mostly bone meal and slaked

lime. This keeps the contents from "boiling out" of the incision, and eating the sutures. We give him a large bottle of equal parts red oil and mineral oil, and tell him to liberally paint the area with this morning and night.

If the client is a good one, we usually inject 250cc calcium gluconate solution hypodermically. This speeds up the healing process and the patient seems to do much better.

Above: Range cattle seldom bloat. Right: Drenched via the tracheae by the owner.

Founder and Paralysis

In addition to the regular bloat medicine, we like to give a half to a gallon light mineral oil; eserine, pilocarpine and lobeline in cases of founder. An equine aloes bolus or purgative capsule, and several Reeks' capsules may also be given. Red oil is painted over the hoofs. Calcium gluconate is given hypodermically.

THE same treatment is followed in cases of paralysis or inability to rise. Formerly, our mortality was about 99%, but we have decreased this greatly the last few years.

We have tried to educate our clients on the matters of indigestion and bloat in cattle and sheep. We tell them that bloat is merely the visible symptom of intestinal or gastric fermentation. We give a good client a bottle of the medicine to try. He usually comes back for more.

The same treatment, except in small dosage, applies to sheep. Due to the camouflage of the wool, a sheep is allowed to go much longer than a cow, hence many die, and the owners say "a sheep can't stand anything!" Neither can a person with a ruptured appendix.

We have treated several thousand cases of acute bloat during the past 20 years and we are learning something new every week. Until the gluconate treatment came into vogue we dreaded these cases of "downers," and especially those heavy with calf. The latter now give birth normally, and in several days are almost as good as new.

WE have a peculiar type of bloat in young calves, fed skim milk. The rumen is not very tense, but the animal flops around, goes blind, and then dies. We have posted several, and found large masses of undigested casein in the abomasum.

Apparently the cause of death is nothing serious, as the negro applicant for life insurance replied when asked of what his father died.

And so we close these remarks on a common ailment that will give a good many veterinarians a lot of trouble unless they study the subject the same as the writer has tried to do, but we hope with better success.

Urinary Calculi in Feeder Cattle

By A. D. WOODRUFF,
Manhattan, Kansas

TO THE veterinarian in a strictly dairy section this condition likely seems unimportant, but for the practitioner of the Middle West who is called upon to serve the needs of the beef cattle feeder, it is a frequent occurrence. In fact some cattlemen claim that 10 per cent of their animals are affected, while others state it to be their principal source of trouble. Urinary calculi in cattle occur almost exclusively in males of the beef type, particularly among steers raised on the Texas and New Mexico ranges, and brought to the corn belt to be fattened for market.

Urinary calculi are usually composed of uric acid, calcium oxalates or calcium phosphates. They originate in the pelvis of the kidney in cattle and usually pass freely through the ureter and bladder, and lodge in the urethra at the first convolution of the S-shaped curve. At this point the urethra is so small that the calculus usually lodges. Sometimes, however, they pass this point and lodge further down where the lumen of the urethra is even smaller. Not only do they occlude the normal flow of urine, but since they are sharp and more or less spicular, they bury themselves in the surrounding urethral wall and set up a chronic indurative urethritis, followed by necrosis.

Frequently one or more calculi may lodge in the mucous membrane of the bladder and produce a localized area of necrosis; perhaps eventually resulting in perforation of this organ.

Etiology.—The cause of urinary calculi is unknown. Just why the lime salts, ordinarily in solution in the urine, should be precipitated out in the kidney pelvis, is a moot question. The fact that it occurs so often in cattle from range sections, where arid conditions prevail, suggests the possibility of insufficient water supply. From this one might assume that there are insufficient urinary fluids to hold in solution all the lime salts carried to the kidney in the normal process of metabolism. Another hypothesis might be constructed on the facts that since the soil is alkali, the water the cattle drink is alkali and the herbage eaten probably contains considerable quantities of alkalis, that the animal excretes such a superabundance of lime salts that the urine cannot hold it in solution regardless of the amount of water the animal drinks.

Further developments in the field of lithiology may reveal the true cause of this condition. Until then we can only conjecture as to the cause of these concretions.

Early Symptoms.—In the beginning, affected steers begin to go off feed and lag behind the rest of the herd. There are frequent attempts at urination, accompanied by straining. There may be the passage of an occasional drop of urine. Stamping of the feet is quite common. The tail head is frequently arched at an angle of about 30 degrees with the ground. Palpation of the urethra over the ischial arch often reveals a rhythmic pulsation. Palpation per rectum sometimes reveals a markedly distended bladder. Pain and sensitiveness are often manifest by the animal when the penis is palpated in the region of the lodged calculus.

Symptoms of Urethral Rupture.—This occurs when necrosis of the urethral wall takes place at the site of the calculus and pressure of the urine causes rupture of the urethra to occur. This may take place in the S-shaped curve or further toward the external extremity, depending on the location of the calculus. All previous symptoms disappear for a short interval of time and the animal may appear quite normal. In a few days, however, the animal begins to develop typical symptoms of uremic poisoning, such as: (a) Going off feed, (b) becoming unconcerned with the surroundings, (c) down and will

rise only after severe treatment, (d) breath has an odor of urine, and (e) subnormal temperature.

A small swelling may appear in the sheath due to the gravitation of urine into this area. If the condition is not corrected the swelling will extend along the ventral surface of the abdomen and become four or five inches thick.

Symptoms Following Rupture of the Bladder.—This occurs when necrosis and perforation of the bladder wall takes place where a calculus has lodged. The abdomen becomes distended due to the escape of urine into this cavity. Distension increases as the case advances and gives rise to the layman's term, "water belly." The animal goes off feed, manifests symptoms of uremic poisoning as previously listed, and soon dies.

Treatment.—This is entirely surgical, as no drugs are known to remove the cause of urolithiasis or to dissolve the calculi once they are formed. When the bladder has ruptured, the case is hopeless. The animal has uremic poisoning and cannot live long. The meat itself is unfit for human consumption, due to the absorption of urine. Once a diagnosis of ruptured bladder is definitely established, the only alternative is destruction.

When the urethra has ruptured, clean, shave and disinfect the sheath and other urine-soaked tissues of the region. Make a median incision through the skin along the sheath, large enough to permit the introduction of the hand. Insert the hand or fingers, depending upon the extent of the swelling, and pass it laterally into the infiltrated tissues, breaking down the fascia and other attachments. This will permit the escape of the urine. Go back as far under the skin as the urine has accumulated. If this is not done, all the skin in the affected area will become gangrenous and slough.

No further procedure is necessary. The urine escaping from the ruptured urethra will create its own canal to the exterior. A sloughing of the tissues at the lowest point of the swelling is probable, as the tissues have usually become gangrenous.

Before either bladder or urethra have ruptured, the treatment consists in cleaning, shaving, and disinfecting an area of skin in the median plane extending upward from the base of the scrotum about six inches. Anesthetize the area by depositing 10cc of a 1% procaine solution in the area (subcutaneously). Make a median incision about four inches long in the skin. Insert the fingers, tear down the underlying fascia, grasp the penis and bring it to the exterior. Insert a knife blade between the dorsal artery of the penis and the penis itself. Run the knife along the penis, posteriorly as far as possible, being careful not to cut the artery at any point. The purpose of this is two fold: (1) To allow the posterior end of the penis (after severing) to protrude outside the skin incision and (2) to keep intact the blood supply both to the anterior and posterior portions of the penis.

Select your own arbitrary point on the disimplanted portion of the penis and sever it (being careful not to cut the aforementioned artery).

Following this, bleeding will occur from the penis where severed. Ordinarily it soon stops. If it does not, one should ligate the corpus cavernosum penis of the posterior portion, by passing a piece of catgut through the penis dorsal to the urethra and tying the two ends on the dorsal surface. Exclude, of course, the dorsal artery from the ligation. This ligation should be made about one-half inch from the severed end.

The posterior portion of the penis will after this procedure remain on the outside of the skin incision and the urine will pass directly to the exterior, since obstructing calculi practically always lodge anterior to this point. The exposed portion of the penis will soon become more or less toughened externally.

Recoveries Following Surgery.—Ninety per cent of the surgical cases, having a favorable prognosis, make a complete recovery. Some cases are so far advanced that they have scarcely a chance even though subjected to operative measures. In these the prognosis is always guarded or unfavorable. Recovered animals may be fed and fattened for market in the usual manner.

Atresia Ani

The patient was a two-weeks-old female chow with no anal opening. The puppy was fat, well developed and seemed to be healthy. In place of an opening there was only a puckering of the skin at the anal region. The puppy was kept under observation for several days and was seen to defecate through the vaginal opening. Operation was not attempted.

On postmortem examination the rectum was found to extend to within five-tenths of a centimeter of the skin in the anal region. An opening near the termination of the rectum connected the rectum and vagina. Sections from the anal region showed an abundance of unstriated muscle tissue.

Ithaca, N. Y. H. L. Brown.

Stubborn Case of Trichuriasis in a Puppy*

During the summer of 1933, a four-months-old, Saint Bernard, female, puppy was found to be infested with whipworms. The usual treatment of intracecal injections which is effective in the majority of cases in two or three daily doses, failed in this case even after three weeks of daily injections.

Prior to this case, the greatest number of treatments required in any similar case was in a small Cairn terrier bitch in which thirteen daily injections were necessary before microscopic fecal examinations were negative and remained negative.

Practically all cases showing two "negatives" a couple of days apart, continue negative on monthly microscopic examinations.

In the case of the St. Bernard puppy which failed even after three weeks treatment the writer decided to perform the operation recommended by Geo. W. Little while spaying. The distal third of the cecum was removed and found to contain numerous worms attached to the mucosa. The stump of the cecum was closed with catgut, Lembert sutures after inserting a small capsule containing three drops oil of chenopodium into the cecum.

All subsequent fecal examinations were negative for whipworm ova. It might be well to state here that if the entire cecum is removed, cicatricial stenosis is apt to follow in about a month after the operation because of the proximity of the wound to the ileo-cecal valve.

While few clients are willing to subject their animals to surgery for the removal of parasites, if other means are effective, it is gratifying to have at our disposal an operation which is certain to remove these worms when intracecal injections fail.

F. G. Steinbach,
Wildwood Crest, New Jersey.

*Received for publication Feb. 6, 1934.

Do You Remember?

1. Question. What is meconium?

Answer. Meconium is a dark green material, which is found in the intestines of the fetus. Due to the comparatively great activity of the liver during fetal life, meconium consists mostly of the excretions of this organ including mainly fatty and biliary acids, salts, pigments and epithelial cells.

2, Q. Does any absorption take place from the stomach?

A. Results of many experiments show that absorption from the stomach is so little as to be negligible in most cases. However, there is some absorption from the stomachs of the pig and dog—certain concentrated solutions being most readily absorbed.

3. Q. Does the optic nerve supply any muscles of the eye?

A. The optic nerve is solely a nerve of sight and supplies no muscles.

4. Q. What is ergosterol?

A. Ergosterol is a substance which is found in the skin of animals and possibly in plant tissues also; when exposed to ultraviolet rays or direct sunlight, it is a potent producer of vitamin D.

5. Q. What is normally the hottest part of the body?

A. Normally the hottest part of the body is the liver and adjacent parts of the hepatic veins. This is due to the great mass of this

organ and to the metabolic changes which take place there.

Akron, Ohio. Wesley O. Keefer.

Teat Operations to Make Easy Milkers

The object of these operations is to increase in size the teat canal or orifice (ductus lactiferus) that the cow may be milked easily. To perform these operations properly it is necessary to know something of the anatomy of the organ. Each teat has a single duct which widens superiorly, and opens freely into the milk cistern (lactiferous sinus). The lactiferous duct is lined by a glandless mucous membrane covered by stratified squamous epithelium. The lower part of the canal is narrow, and is closed by a sphincter of unstriped muscle.

It is absolutely necessary, in doing teat operations, to have the animal well restained. The instruments should be aseptic when invading the cow's udder.

The simpler operation should be tried first. This consists in the use of round, five-inch, artery forceps. First the teat is well cleaned, especially at the orifice, and then swabbed with tincture of iodine. Then milk the teat to further clear out the canal. Having completely sterilized the forceps, the teat is pulled down, and compressed between the thumb and index finger of one hand. The forceps are then inserted into the teat canal, so that the jaws are at least past the sphincter muscle, the jaws during this procedure being closed. Then by spreading gradually, until in the operator's judgment sufficient enlargement of the canal is attained, remove the forceps and insert a sterile teat plug. Except when it is being milked, the plug should remain in the teat from seven to ten days. If this operation proves unsatisfactory, one will find it necessary to resort to the more radical operation of cutting the sphincter muscle.

This is done at the Kansas State College by the use of a teat bistoury. With the blade closed and sterile, hold the bistoury in one hand. With the other hand, the teat is pulled down and compressed between the thumb and index finger. Then insert the bistoury into the canal. Then engage the cutting edge to the superior or upper side of the muscle, being careful not to cut through the skin, or cut the mucous membrane at the orifice of the teat. Repeat the procedure until the muscle has been divided in front and rear.

The teat should be milked a little every hour or two during the day for one or two days. The stream of milk will spray a little for two or three weeks, and then return to a round stream and easy milking.

Each method has been satisfactory in a number of cases.

C. L. Miller.

Manhattan, Kan.

ANSWERS TO HADLEY'S FORTY QUESTIONS

(See February Issue, page 83)

1. Bison.
2. Grizzly bear.
3. Prairie dog.
4. Woodchuck or ground-hog.
5. Rat.
6. Goat.
7. Scaly anteater and duck-billed platypus, both from Tasmania.
8. Hyena.
9. Arctic fox.
10. Rabbit.
11. Bear.
12. Muskrat and rabbit.
13. Skunk.
14. Mole (because it has largely lost the use of its eyes).
15. Opossum.
16. Rabbit.
17. Weasel.
18. Marten.
19. Otter.
20. Badger, mole.
21. Wolverine.
22. Beaver.
23. Beaver, muskrat.
24. Skunk.
25. Beaver.
26. Weasel.
27. Wolves.
28. Rabbit (because it is so sought after as a food).
29. Silver fox.
30. Muskrat—sheared and dyed black.
31. Skunk.
32. Skunk.
33. The opossum with 12 days.
34. The elephant with 660 days.
35. Fisher.
36. Mink, otter.
37. Fox.
38. Muskrat.
39. Stoat or weasel.
40. Mole.

International Veterinary Congresses

AS MENTIONED last month, the Fourth International Veterinary Congress was held in Brussels, Belgium, September 10-16, 1883, seven full days being occupied by the sessions.

It will be recalled that the First Congress was convened in Hamburg, Germany, in 1863, largely to discuss the problem of rinderpest control, but that the subject of warranty of animals by the seller was also discussed; that at the Second Congress, which met at Vienna, Austria, in 1865, in addition to rinderpest, tuberculosis and rabies were discussed at length and some other diseases more briefly; and that at the Third Congress, which convened at Zurich, Switzerland, in 1867, although rinderpest held first place in the discussions, rabies, tuberculosis and other diseases and veterinary education came in for much discussion.

At the Fourth Congress, the discussions were strictly limited to four subjects—contagious pleuropneumonia, veterinary education, tuberculosis and its bearing on meat inspection and the organization of a veterinary sanitary service.

This was the first Congress in which the veterinary profession of the United States or of any part of the Western Hemisphere took part. Three veterinarians from New York State attended, Prof. James Law, Prof. A. Liautard and Dr. J. Robertson. Professor Law attended as a delegate of the U. S. Treasury Cattle Commission; Professor Liautard as a delegate of the U. S. Veterinary Medical Association; and Doctor Robertson as a delegate from the American Veterinary College.

His Majesty, King of Belgium, was patron of the Congress, which was opened by Belgian Minister of Interior Somerhausen.

Dr. Francisco Moguel, Veterinarian to the Mexican Embassy, Washington, D. C.

This Congress did pioneer work of great value. For example, on the proposition of M. Bouley of Paris it agreed that "The veterinary sanitary service ought to employ the greatest number possible of veterinarians"—that is, that veterinary practitioners should be enrolled in the live stock sanitary service and carry out the regulations of that service under the direction of a small official body. This program has been followed more or less fully in Europe ever since, and particularly in the Scandinavian countries is now in effect just as endorsed at the Fourth International Veterinary Congress.

In the matter of veterinary education, the Congress decided "Preparatory branches required for the study of veterinary medicine should be the same as those required in the student of human medicine." However, after this good start the Congress backed up a little, again upon the insistence of M. Bouley, by ruling "For various reasons, this principle cannot be practically enforced," and "It would be wrong to turn aside intelligent youth." Here we see the genesis of that violent, one might almost say sanguinary, controversy in the United States 30 years later, "The high school kid versus the sturdy farm boy." Although many insisted upon a five-year course of

study for veterinary students, the Congress finally approved a four-year course as a minimum. Compulsory boarding of students was declared against, and it was agreed that in view of the necessity for veterinarians to mingle with the public after they take up practice, that veterinary students ought to be allowed the greatest amount of liberty possible, outside of study hours.

The Congress resolved that: "Veterinary medicine is for all nations the principal guardian of hygiene and public wealth. There is everywhere a national and undeniable desire to witness the rapid progress and establishment of its interests and to see it assume, in all countries, the place among scientific institutions which is its undoubted right."

Yielding to the persuasiveness of Professor Law, based upon the experience of Thayer of Massachusetts, inoculation for the control of contagious pleuropneumonia, which had heretofore been the adopted procedure, was disapproved in favor of the slaughter method.

The Congress took a rather more drastic view of the necessity for the condemnation of the meat of animals showing lesions of tuberculosis than is now regarded as proper.

It was decided to hold the Fifth International Veterinary Congress in Paris, within five years. Later, the meeting was postponed to 1889, because of the International Exhibition held in Paris in that year, and a date in September (2-8) was selected that those attending the Congress might be present at the dedication of a monument to Bouley. It will be recalled that Bouley had taken a very important part in the preceding Congress. The 5th Congress discussed principally tuberculosis and meat inspection. Professor Liautard of New York attended and was one of the vice presidents. No German veterinarians attended.

Prof. Dr. Rafael Muñoz Ximénez, Montevideo, Uruguay.

Professor Dr. Rafael Muñoz Ximénez of Montevideo, Uruguay, is a Veterinary Surgeon and Lawyer; member of the Permanent Committee of the International Veterinary Congresses; corresponding member of the Veterinary Academy of France; Director of the Sanitary Policy of Animals of the Republic of Uruguay; Professor of Therapeutics and of Veterinary Jurisprudence in the Veterinary School of Montevideo and Professor of Commercial Law in the College of Law of the University of Montevideo.

Professor Ximénez qualified in veterinary medicine in the Veterinary College of LaPlata and received the degree of LL.D. from the law school in the University of Montevideo.

He served on the Executive Committee of the International Freezing Association and has taken part in numerous national and international congresses relating to Animal Industry. He has visited the United States for the purpose of studying live stock sanitary organization and meat inspection as conducted at the large packing houses.

Abstracts

By F. VOLKMAR
Columbus, Ohio

Statistics on Anti-Rabies Vaccination

Of the 19979 animals vaccinated,[22] 8977 were cattle, 3 buffaloes, 1160 horses, 29 asses, 4 mules, 8140 pigs, 1610 sheep, 51 goats, and 5 geese. Of 17,040 animals, 88.2% were bitten by 774 dogs; 5.61% were bitten by 31 pigs; 4.37% were bitten by 39 cattle; 1.7% were bitten by 44 horses; 0.42% were bitten by 2 cats, and 0.11% were bitten by 1 ass. The origin of the infection in the remaining animals could not be determined. The reason for vaccinating these animals was that their mates exhibited symptoms of rabies. Negri-bodies were found in 388 individuals of the 774 dogs mentioned. In 254 dogs, rabies was diagnosed by the clinical symptoms or by the pathological findings. In 132 cases the condition of being bitten indicated rabies. Of 19,538 animals exposed to rabies infection and subsequently vaccinated, 477, that is, 2.43% developed rabies; they were: 20 horses, 341 cattle, 99 pigs, 7 goats, 8 sheep, 1 buffalo, and 1 ass. Of these animals, 347 died during the process of vaccination or within two weeks after it was completed, and are therefore excluded from the statistics.

After correcting the tabulation, the following statistics apply: Of 19,236 animals, 130, that is, 0.67% died from rabies, in spite of vaccination; they were: 6 horses, 98 cattle, 22 pigs, 2 goats, 1 sheep, and 1 buffalo. Considering those cases in which severe injuries and lacerations resulted from the bite of a definitely proved rabic animal, then of 1130 animals, 134 died from rabies, that is, 11.8%. Allowing for those which died within two weeks after vaccination, then of 1044 animals, only 48 died from rabies, that is, 4.5%.

Grouping them according to injuries, we get the following incidence: Of 528 animals with severe head lacerations, 38, that is, 7.1% died in spite of vaccination; of 208 with body wounds, 7, that is, 3.3%, died in spite of vaccination; and of 308 with lacerations of the extremities, 3, that is, 0.9%, died in spite of vaccination.

The fact that of 477 vaccinated animals which died from rabies, 252 died during the process of vaccination, and 95 within two weeks after the completion of the vaccination, or altogether 72%, calls attention to the indication and desirability to proceed with vaccination as soon as possible after infection.

From the results of these nearly 20,000 vaccinations the authors are convinced that their method of vaccination is harmless. In no case was vaccination-rabies encountered. Pronounced tumors or edematous infiltration developed but seldom on the site of injection, and disappeared within a few days when they were encountered. Abscesses occurred in three cases only. In a few cases a low fever set in, accompanied by debility and loss of appetite, but these symptoms too disappeared soon. In part of the vaccinated cows of one single herd only, was a 25% loss of milk observed, lasting for a few days. Many animals in advanced pregnancy were vaccinated, without any injury to dam or offspring.

The fact that no postvaccinal paralysis occurred among any of the vaccinated animals, the authors attribute to their method of vaccination, in which very little nerve matter enters the organism. A paresis which suddenly appeared and quickly disappeared again (paresis of the extremities and paralysis of deglutition) was observed in three cases (one horse and two oxen). The question arises, whether in these cases the symptoms developed were not really an attack of rabies which did not progress, but terminated in a cure through the action of the vaccine. This seems the more plausible since similar cases are reported where rabies developed in vaccinated animals, but terminated in recovery after a few days. In their cases the authors explain the recovery from the outbreaks of rabies as due to the immunity developing from the vaccination.

The following data on incubation were collected: Of cattle, 1 developed rabies 4½

[22] Oujesxky, A. 1933. Dreissig Jahre der postinfektionellen Wutschutzimpfung der Haustiere in Ungarn. (30 years of post-infectional rabies vaccination in Hungary.) *Deutsche Tierärztl. Wochenschr.* 41(14):209-210.

months after infection, 1 after 5 months, 1 after 6 months, 1 after 6½ months, 1 after 7 months, 2 after 8 months, 2 after 9 months, 1 after 10 months, and 1 after 12 months. A colt developed rabies after five months and six days, a horse after 11 months; one pig after five months, and another pig 201 days after infection. In three cattle the incubation was 11, 12 and 14 days respectively; in one horse the incubation was 11 days, and in another 13 days; other incubation periods were: in a young goat 15 days, and in one pig each 8, 10, and 11 days respectively. Four pigs developed rabies after 12 days, six after 13 days, and nine after 14 days.

Pathogenesis of Infectious Anemia of Horses

It seems possible that in swampfever[24] the so-called virus acts merely as an exciting factor or stimulus toward the production of pathological lesions, but is not in itself capable of either multiplication or of producing the symptoms of disease. The infectious matter, present everywhere in the body of an infected animal does not seem to originate from the immediate multiplication of the introduced virus, but originates in the animal body under the influence of the introduced virus as a product of abnormal metabolism. Its nature as a living organism is not beyond doubt.

After an incubation period, varying between considerable bounds, depending on the final result of the combined efforts of the varying biological characteristics of the causative agent and the infected body, the disease starts with a fever and with more or less pronounced septicemic symptoms which often recur at irregular intervals. During such attacks of fever, degenerative changes occur in the parenchymatous organs, and in connection with the injury to the walls of the capillaries, hemorrhages occur. The red blood corpuscles, stored and conglobated in great masses in the spleen, are changed into hemosiderin. As a substitute for the destroyed cells, the red bone marrow expands in space, but erythropoesis remains impaired. When the attacks follow in quick succession, considerable anemia without symptoms of regeneration, and without myeloid changes in liver and spleen, will result, but true hemolysis can not be demonstrated.

In connection with the attacks of fever, the reticular cells in the spleen, in the lymphnodes, and especially the wall-cells in the capillaries, are transposed into a state of irritation which will characterize itself in an increase of storage of iron in the spleen, the endothels of the liver, and in local proliferation of the capillary endothels in the liver. The excess iron pigment formed, and the small cell foci may disappear again in the course of fever-free intervals of longer duration.

In the advanced stage of the disease, the entire spleen tissue is displaced by a lymphoid granulation tissue, produced by the reticular and endothelial cells, which is capable of manufacturing the red blood cells. Doomed to destruction, the spleen finally loses its iron content. On the other hand, the granulation tissue causes increase in size; the result will be a tougher consistency of the spleen which becomes unable to regulate the amount of the circulating blood, due to the filling out of the blood-sinuses by granulation tissue.

Corresponding to the granulation starting at the terminal stage of the disease, the lumens of the capillaries become filled with various cellular elements, and thus the tissue parts of the central lobules become doomed to destruction. The injury to the liver tissue leads to severe intoxication and symptoms, especially the occurrence of pathological leucocytes in the blood, degeneration of internal organs and of the heart muscle, to symptoms of licking disease, to loss of the blood-stimulating action of the liver, to inability to balance the loss of spleen activity in the iron metabolism, and, therefore, to increasing anemia and debility in the advanced stages, independent of fever attacks.

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[24] v. Mocsy, J. 1933. Zur Pathogenese der ansteckenden Blutarmut des Pferdes. (The pathogenesis of swampfever.) *Arch. Tierheilk.* 65 (6) :547-558.

Improved Agglutination Test for Bang's Disease

The dilution of the serum by the Noble method[26] is 1:2, 1:4, 1:6, 1:8, 1:10. The concentration of the antigen is 4 to 5 times the usual one. It is said that thus the reaction between concentrated bacterial emulsion and concentrated serum takes place quicker, due to the better contact. The author tested the method on 1,000 sera from cattle with contagious abortion. The following conclusions are arrived at: The rapid agglutination method (Noble) in connection with the clinical epizootical findings, gives more accurate results than the ordinary method. The reaction proceeds more clearly in the rapid agglutination method (Noble), than with the usual method. The group of doubtful reactions is considerably lessened. The number of faulty positive reactions of the ordinary method is lessened by 3.6%

The rapid agglutination method (Noble) enables one to detect a greater number of infected animals than is possible with the ordinary methods, due to the greater precision with which doubtful cases can be eliminated. The rapid agglutination method (Noble) is more sensitive than the ordinary method, and will give a titre with serum which had been kept for a long time, or which had been frozen, that is, in cases in which the ordinary method miscarries. The rapid agglutination method enables an accurate determination of the size of the agglutination titre in the bloodserum of experimentally infected animals. The rapid agglutination method (Noble) is simple in technic, and the result is quickly determined.

Noble's method is carried out by mixing 0.1cc of serum in one-tenth of the usual dilutions, e.g. 1:2.5, 1:5, 1:10 with an equal volume of antigen suspension 4 to 5 times thicker than is usual, shaking for a few minutes, making up the usual volume by addition of saline and reading at once. The actual reaction is thus hastened, but the readings are made with a suspension of normal density.

[26]Schurnakowa, M. A. 1933. Die beschleunigte Methode der Agglutination nach Noble zur Diagnostik des seuchenhaften Verwerfen des Rindes bei der Infektion mit Brucella abortus Bang and deren Anwendbarkeit zur Massendiagnostik. (The Noble-method for rapid agglutination.) *Deutsche Tierärztl. Wchnschr.* 41 (14) :214-215.

Milking Machines and Mastitis

In the present as well as in previous experiments[27] the authors found the teat canal to be the portal of entry for mastitis-streptococci. The course of mastitis depends upon the method of milking and the degree to which the udder is drained. Incomplete milking aggravates the course of the disease. It is therefore essential that the machine-milking be followed up by handmilking in order to drain the udder as completely as possible. Bacteriological examination of the milk, as a means of detecting mastitis, is superior to clinical examination of the udder, or to physical and chemical examination of the milk.

Lead Treatment for Range Paralysis

The transmissible erythroleucosis[28] of poultry can be cured in many cases, even in very advanced stages, by the intravenous injection of a lead-preparation, named: R237b. Similar curative effects obtained by the use of thorium-X are really lead actions resulting from the decompositional stages thorium-lead. The lead does not act upon the noxa itself, but attacks at the seat of the disease, that is, in the blood-forming tissues. In spite of the effected cure, the disease-producing agent is still capable of circulating in the blood. Fowl-leucosis is equivalent to the myeloid leucemia of man, but not in its acute form. It is proposed to use for both diseases the designation "hemoblastoma" with the prefixes "lympho-," "hemo-," "erythro-," respectively, to indicate the tumor nature.

The behavior of fowl-leucosis toward lead is tending to support the views of those who do not recognize the infectiousness of this disease, but consider it merely of the nature of a malignant tumor of the blood-forming organs. Virus as a factor in the artificial transmission of fowl-leucosis (the same as in Rous-sarcoma and similar animal tu-

[27]Schmidt-Hoensdorf, F., and Schmidt, W. 1932. Die galaktogene Infektion und der Einfluss des Ausmelkens auf den Verlauf der Streptokokkenmastitis. II. Mitteilung: Maschinenmelken. (Influence of milking machine upon streptococcic mastitis.) *Arch. Tierheilk.* 65(6): 535-546.

[28]Zadik, P. 1933. Erfolgreiche Behandlung der Hühnerleukose mit Blei. (Successful treatment of fowl-leucosis with Lead.) *Folia Haematologica* 50(4):460-475.

mors), is likewise rejected, for lack of positive proofs in their favor. It is brought out in the discussion that a hormon-like matter, originating from cell-degeneration, may be possibly the transmitting agent.

Antibody Studies in Fowl-Leucosis

A compliment-fixating antibody[32] which reacted like antigen with the extract from erythroblasts and myeloblasts respectively, was found in the serum of about 20% of chickens which had been infected experimentally with leucemic blood. When a careful analysis had been made, it was then found that the antibody is not to be regarded as a specific virus-antibody, but as a product of the reaction excited by the type-foreign blood.

Intestinal Flora of Dogs and Cats

The examination of 600 fecal samples[33] from 163 dogs and 18 cats did not demonstrate any germs of the paratyphus-enteritis group. Germs of the so-called intermediate group, occupying a place between the coli and the meat-poisoning group, were found 63 times. They differ from the coli-bacteria, when grown upon color plates, by their similarity to the meat-poisoners; from the meat-poisoners they differ by their ability to ferment saccharose, to form indol, and by their weakened fermentation of milksugar. Altogether 5 types could be differentiated, depending on the presence of one or several of these characteristics. Whenever germs are suspected of belonging to the paratyphus group, one should not omit to test for saccharose fermentation and indol formation, in addition to milksugar fermentation. Among other germs, the *Bacterium proteus* was found in 25% of the cases. In all the 48 fecal samples of the 18 cats, cocci were found to dominate the aerobic bacterial flora of the intestines. Coli bacteria were missing either entirely, or were present only in very small numbers.

Histological Changes in Undulant Fever

A school-teacher, 37 years old, complained about general malaise[39] for nearly three months; finally his condition became aggravated and he was admitted to the hospital. His blood agglutinated Bang and Malta organism in a dilution 1:3200.

The bloodpicture on admission was: Erythrocytes 3,300,000, hemoglobin 63%, color index 1.0, leucocytes 4,100, consisting of those with segmented nucleus 57%, those with a rod-shaped nucleus 12%, immature leucocytes 2%, lymphocytes 27%, monocytes 1%, basophiles 1%. Eight days later: Erythrocytes 3,300,000, hemoglobin 60%, color index 0.9%, leucocytes 2,800, consisting of those with a segmented nucleus 40%, those with a rod-shaped nucleus 9%, immature leucocytes 1%, lymphocytes 47%, monocytes 2%, eosinophiles 1%. The thrombocytes numbered 89,100.

The clinical diagnosis was: Morbus Bang with undulating fever, edema of the lung, acute collapse of the circulatory system, endo- and pericarditis, tumor of the spleen, right pleuritic extravasation, apex cirrhosis of either lung.

The patient died on the 14th day of hospitalization. The histological examination was practically negative. Discussing the source of infection, the author points out that the patient had opportunity for contact with Bang diseased animals, but that he was not known to have handled animals. He did not even consume animal products, such as milk, at least not in the raw state. He was, however, raising poultry, such as pheasant, pigeon, chicken. He used to treat his sick birds personally. Since chicken are known to be carriers of Brucella organisms, the possibility of such a source of infection is mentioned.

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[32]Thomsen, O. Engelbreth-Holm, J., Rothe Meyer, A. 1933. Versuch des Nachweises von spezifischem komplementbildendem Antistoff bei Hühnern mit experimenteller Leukose. (Antibody studies in experimental fowl-leucosis.) Zeitschr. f. *Immunitätsf. u. exp. Therapie* 81(½):121-131.

[33]Venske, W. 1933. Ueber das Vorkommen von Keimen aus der Paratyphus-Enteritis Gruppe und von Uebergangsstämmen bei Hunden und Katzen. (Germs of the paratyphus-enteritis group and intermediate types in dogs and cats.) *Zentralbl. f. Bakter.*, etc. I. Orig. 130 (¾):259-264.

[39]Matzdorff, F. 1933. Histologische Untersuchungsergebnisse bei einem Fall von Morbus Bang. (Histological observations in a case of Morbus Bang.) *Virch. Arch.* 290(1):47-52.

ALABAMA SHORT COURSE

The Short Course for Graduate Veterinarians held at the College of Veterinary Medicine of the Alabama Polytechnic Institute at Auburn, Alabama, February 6 to 10, 1934, was attended by veterinarians from a number of states. The lectures and operations were largely confined to dogs and poultry, D. A. Eastman of Moline, Illinois, did all the work on dogs. He gave a lecture and operation on Mann's method on enteroanastamoses; removing the cecum in the dog; ovarotomy in the bitch and cat; tenotomy in the dog; diagnosis and treatment of gastro-enteritis in dogs and cats; treatment of various kinds of parasitic skin diseases. He also gave a lecture on treating dogs for distemper and also the newer methods of immunizing pups against distemper. He did a number of tonsilectomies on dogs, and discussed the method of preventing rabies in dogs employed in Cedar Rapids, Iowa.

F. D. Patterson gave lectures on Leucosis in fowls and held postmortem examinations on a number of chickens having the blood type, nerve type and the eye type of this most troublesome disease. He also gave lectures on tuberculosis in chickens. He tuberculin tested a number of chickens and demonstrated the technique and the reactions. He gave postmortem examinations on a number of tuberculosis eractors.

H. W. Sawyer read a paper on Heart Worms in dogs giving the life history of the filaria and all of the newer methods of treatment. Methods of examining the dog's blood for the larvae in the blood were demonstrated. The life history in all its stages is not definitely known. No sure cure in all stages is definitely known. Temporary cures have been found for certain stages of infestation. Most of these remedies are made from tartar emetic or antimony and potassium compounds. Some are injected into the blood stream; others into the mucles. Some have claimed some good results from giving arsenic orally.

H. M. O'Rear of the Division of Tuberculosis Eradication read a paper on the methods and technique of tuberculin injections in cattle and gave demonstration. Proper technique according to Doctor O'Rear will eliminate most of the no-lesion reactors.

Many were the operations and discussions for the benefit of practitioners. The banquet given by the Student Veterinary Medical Association was attended by more than a hundred and it was enjoyed by everyone.

One session was devoted entirely to meat inspection. The first question under discussion was: Who can do the work? (1) He must be a graduate of a standard veterinary medical college. (2) He should have had a complete and practical course in Pathology. (3) He must have had a thorough and complete course in all the diseases of meat producing animals. (4) He must have had a good course in practice of meat inspection work in a slaughter house. (5) He should have a practical knowledge of all the diseases of animals that are liable to be transmitted to man by infected or infested meat products.

One session was devoted entirely to milk inspection. Doctor Winters, gave a brief talk about how to count or estimate the number of white, red and other kinds of cells in the blood of animals. Doctor Isbell, described in detail some of the methods of making a count or estimate of the number of living bacteria in milk samples.

The factors controlling the number and kind of bacteria in milk are: (a) freedom of milk producing cows from disease; (b) cleanliness of cows; barns and all the dairy processes and utensils; (c) the sterilization of all milk containers; (d) keeping milk cool from dairy to consumer; (e) Sterilization, Pasteurization and the use of chlorine and other chemical preparations in milk (all of which are more or less injurious to the quality of the milk), (f) too much stress is placed upon the bacterial count that gives the quantity and no attention or consideration to quality or kind of bacteria in milk; (g) more attention or inspection should be given to the kind of bacteria, diseases of the cows and more frequent inspections of the dairies and the cows. Who may do efficient dairy inspection? The veterinarian is best qualified to do milk inspection. He alone knows the diseases of the cow and understands dairy problems better than the M. D., the dairy graduate, the sanitary engineer or the layman. But any and all of the requirements for efficient milk inspection may be done best by the graduate veterinarian and he must be taught and prepared for this work by the standard veterinary college. The veterinarians in the U. S. Army do all the meat and milk inspection for the U. S. Army, why should not veterinarians do such inspection for the public? The only reason why it is not done (as in U. S. Army) in all the cities, counties and states is politics.

C. A. Cary.

MILK FOR MEN

We hear much nowadays about the value of milk in the adult dietary. We are told that milk is not only food for babes but also good food for grownups, for strong men. We are even told that every adult should include a certain amount of milk in his daily ration.

This idea is not new.[1] The use of milk as an adult food dates from the early days of civilization.

Civilization began with agriculture in the fertile river valleys and with culture of milk-bearing animals on the grassy plains—with settled agriculturists and nomadic herdsmen. The agriculturists ate largely cereals and the herdsmen ate largely milk; and history seems to show that the milk eaters had rather the better of it in the matter of physical development as compared with the grain eaters: they appear in history as conquerors. The Semitic nomads of southwestern Asia conquered the ancient Babylonians and Egyptians. The Aryan herdsmen of western central Asia conquered the agriculturists of the south along the line from India westward in the second millennium before Christ and afterwards. Later the Mongols of eastern central Asia, pastoral nomads, conquered most of Asia and a large part of Eu-

rope. The Arabs, who live under what might seem unfavorable physical and political conditions, but who, being pastoral, nomadic people, subsist largely on milk, had their period of conquest; and very recently they have been described as "physically one of the strongest and noblest races in the world." At the present time, the peasants of Europe who eat largely milk and cheese and not much animal flesh seem not inferior in physical development to those in whose diet animal flesh occupies the more prominent place as a source of superior protein. The Bulgarians, who have the reputation of being a particularly healthy and long lived people, have often been cited in illustration of the benefits of a largely milk and cheese diet. McCollum says: "Where it [milk] is used in liberal amount as human food, the people are of exceptional physical perfection." References to the use and high estimation of milk as a food for adults are found in very ancient records. There is an ancient Sanskrit proverb to the effect that "Man may live without bread, but without milk he dies." In the Old Testament it is recorded that Abraham set milk before visiting guests. Palestine was recommended to the Hebrew exiles from Egypt as "a land flowing with milk and honey." Homer speaks of the "famed tribe of long lived Hippomulgi, reared on milk."

The proposition that milk is a good food for adults is attested by human experience, and it is established by a study of the composition and qualities of this remarkable food stuff.—Edward E. Cornwall, M.D., in *Medical Times*, 62:1.

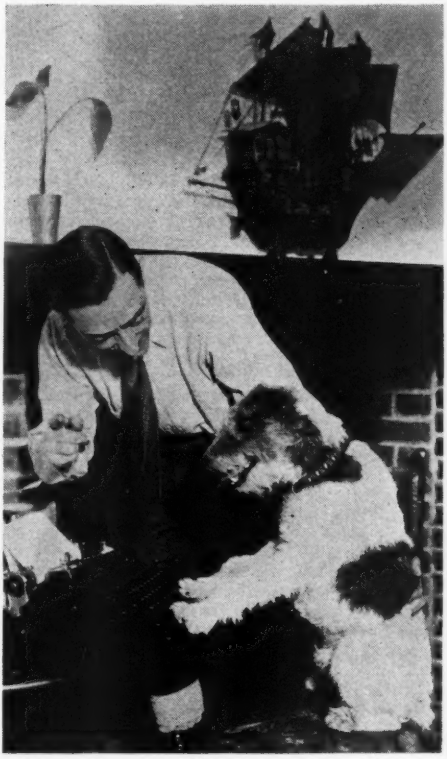
THE GERM INDUSTRY

One of the biggest industries in the country has constantly refused to sign a code of any kind. Federal code authorities seem powerless to force any wage agreements, hours of labor, or uniform working conditions on this group. In fact, "The United Germs of the World," the largest makers of Distress, Disease, and Death, refuse to change their ancient customs in any way. They insist on working 24 hours a day, 7 days a week, with no time off for Sundays or Holidays. They do, however, have excellent cooperation within their ranks, where one army of germs wears down the victim, and the second group, like the pneumonia legion, finishes the job of destruction. Man's ancient enemy is now, and always has been, not the armed force of the war god Mars, but rather the silent, insidious invasion of germs that destroy our crops, our livestock, and man himself. The ravages of preventable disease exact an annual tax greater than the cost of the World War. The destruction and suffering in the wake of a battle is no greater than that in the wake of an infectious disease. In our money battles and bullet battles, too often man neglects the germs —our common foe. We must kill them with antiseptics; check them with biologics, and eliminate them by sanitation. Too often we prove ourselves human saps rather than *Homo sapiens.*

Mark Welsh.

College Park, Maryland.

R. E. Shope, M. D., of the Rockefeller Institute of Medical Research, discussed hog flu at the October meeting of the Linn County (Iowa) Veterinary Association at Cedar Rapids. Doctor Shope reported additional evidence that hog flu is caused by a combination of a specific bacillus and a filterable virus, and that vaccination against the disease with an unattenuated virus has given promising results so far as tested. It is stated that this germ material and virus will infect ferrets, causing a type of influenza identical to that caused in these animals by infectious material from cases of human influenza.



Zipper and Bob Becker Preparing "Scrip" for a Radio Program.

Bob Becker, noted nimrod and writer on hunting and fishing, well known through many worlds of dogdom, exploration and hunting, has gathered around him an enthusiastic audience of dog lovers, and those who love the out-of-doors. Twice a week over WGN-Chicago, (WBZ-Boston, KMOX-St. Louis, KSTP-St. Paul) he broadcasts interesting chats on dogs. Covering not only their care and handling, but stories from his own varied experiences with dogs from the Arctic Circle to Brazil. Zipper attends each broadcast and "speaks" on appropriate occasions.

Development of Veterinary Medicine in North America

By D. M. CAMPBELL

II—THE FIRST PERIOD—1790 to 1850

Questions, when they cannot be answered, often cause a great deal of trouble.—Van Loon.

2. THE FOUNDATION

(Continued from last month)

He indulges in one absurdity. This, too, is taken wholly from Gibson, whom he too much admires:

But the greatest caution is necessary to be observed with horses that are very fat. They require a long course of very moderate and regular exercise before they can, with safety, be put to that which is the least violent. Their fat, by the excessive heat their bodies acquire by violent exercise, is melted, as it were, into oil, and carried into the blood, when it causes what is called an oily plethora, which produces the most violent and sudden inflammations in the lungs, etc. The viscidity of the oily matter obstructing the vessels, and preventing the other fluids from passing through them, frequently occasions sudden death; many instances of which I have known, particularly in those horses that have been fed with a great deal of boiled meat [grain], in order to fatten them for sale. Thus, a pair of strong heavy carriage horses were once offered me for sale. I declined purchasing them, on account of their extreme fatness, which was thought very singular. A gentleman in the neighborhood, who was not so scrupulous, purchased them. They were constantly and regularly exercised with the greatest care and attention for a considerable time, in order to reduce their bodies, and bring them into a proper condition for work. After this has been continued for some weeks, they had occasion to travel pretty smartly a very short stage of seven miles out and home, which finished one of them after a short illness. This, and a variety of similar cases, which will readily occur to everyone who is acquainted with horses, may serve to show the danger of putting those that are too fat and full of juices, too suddenly on violent exercise of any kind; for, as I have frequently hinted, there is no state or habit of body a horse can be in, more dangerous, or more liable to disease, or that runs greater hazard, when attacked with disease, than that of being too fat.

Clark understood thoroughly the structural changes occurring in founder and the hopelessness of more than ameliorating the condition by treatment. However he regarded the disorder as always proceeding "from cold too suddenly applied to the body whether it be from a current of cold air or plunging the body into water when overheated. The effects are the same." Of the symptoms, he gives a perfect description.

Clark's views on glanders are disappointing. Like all writers of his day, and many who have discussed the subject more recently, he did not differentiate between glanders, nasal gleet and chronic catarrh, and not always between either of these diseases and strangles. Although he was entirely familiar with the lymphatic circulation particularly its function in the absorption of nutrients in the alimentary canal, he regarded lymph glands as secretory organs.

The following observation on glanders is interesting:

As the pituitary membrane, which lines the inside of the nose and the cavities of the head, is now pretty generally known to be the seat of that disease in horses called the glanders, and which was first discovered by M. la Fosse, who is very justly entitled to the merit of it. He has at the same time pointed out the method of cure, when practicable, before the bones of the head become carious; of which Mr. Bartlet, in his Gentleman's Farriery, p. 119, treats pretty fully. He has likewise given a plate for explaining the operation of the trepan, as proposed in the method of cure by M. la Fosse; but, as Mr. Bartlet has adopted an inaccuracy advanced by the former, which if not corrected, would mislead the young practitioner, I shall beg leave to mention it in this place, and point out the error. In p. 123, he says: "It is a curious remark of our author, that the sublingual glands, or the kernels situated under the jawbone, which are always swelled in this distemper [disease], do not discharge their lymph into the mouth, as in man, but into the nostrils; and that he constantly found their obstruction agreed with the discharge; if one gland only was affected, then the horse discharged from one nostril only; but, if both were, then the discharge was from both."

"It is surprising that Mr. Bartlet should not have corrected M. la Fosse in this anatomical error, of placing the sublingeal glands under the jaw-bone on the outside, and mistaking the submaxillary glands for the sublingual; for, if he had inspected the head of a horse, he would have found the sublingual glands in their proper place, where their very name implies they should be, that is, immediately under the tongue, as in the human body; he likewise might have traced their duct, or opening, to the two small papillae that are situated on the inside of the fore-teeth, under the point of the tongue, which demonstrates that they discharge their lymph into the mouth, as in man; and in all the dissections I have made on glandered horses, I never found these glands affected; but the submaxillary glands that are situated between the jaw-bones on the outside, are always more or less swelled, inflamed, or indurated, according to the length of time they have been affected, or the virulence of the disease; they likewise discharge their lymph into the mouth, as in the human body; and their being constantly swelled in glandered horses, according as one or both sides of the pituitary membrane is affected, may arise from the same cause which produces the swelling of the inguinal glands, in the groin of the human body, in a gonorrhoea, that is, from the absorption of the virulent matter affecting them, and occasioning that swelling, induration, etc. Hence, it is evident that the swelling of the submaxillary glands in glandered horses, and of the inguinal glands in the groin of the human body, in a gonorrhoea, are only symptoms of these disorders.

He quotes Count de Buffon, an eighteenth century writer on Natural History, that this "Disease called glanders, proceeds from the horse dipping, or sinking, his nose and mouth deep into cold water when he drinks," with some measure of approval. He regards it as the most under estimated of all maladies to which the horse is subject. It is strange indeed that with his acute powers of observation he did not learn more about this disease. Shall we assume it was not common in Edinburgh in Clark's time? His error is attributable mainly to the great (although undeserved) reputation that Count Buffon bore in scientific circles. Clark accepted Buffon's erroneous statements on this account, as is plainly indicated.

He discusses a disease of the maxillary sinuses in which they become filled with "mucus," but makes no mention of trephining; relating his experiences on autopsy, as follows:

On dissecting the heads of such horses as have been affected with this disorder, I have always found the pituitary membrane to be the seat of the disease, and the cavities formerly described filled with viscid mucus. In the first stage of the disorder it is of a mild bland quality, and of a white color, without any particular smell. In the second stage it becomes more ichorous, foetid and discolored. In the last stage it is of a most offensive smell, and of a black yellowish color, mixed with blood, the whole membrane being then turned into one continued ulcer, the spongy, and even the more solid bones become carious and rotten, all the cavities of the nose, etc., may then be said to be converted into one general mass of corruption.

There is a chapter on the care of horses when sick which deals mostly with nursing, and is sensible advice.

Concerning medication in inflammatory cases, he says:

In order to lessen the great heat of the body, and to allay the internal commotion which then prevails, such medicines may be given as are termed coolers or sedatives, from their known qualities of restoring regularity to the vascular system, and at the same time, have the power of removing spasmodic constriction in the vessels, from the calm which succeeds their administration; for which purpose, nitre, or saltpetre, is amongst the best, and agrees very well with horses, one ounce of which, dissolved in a quart of warm water, may be given three, four or five times a day, by a horn, when found necessary. I would here observe that, in order to render the nitre more effectual, that it be in powder, and mixed with the water immediately before it is administered, as it loses considerably its cooling efficacy on being long dissolved; the draught may be sweetened with honey or molasses, in order to render it the more palatable. Another necessary caution I would recommend is, that the horse should be as little fatigued as possible in giving it. One man should hold up the horse's head with both his hands, whilst another pours the drink, by degrees, into the horse's mouth, and, when the horse seems tired or fatigued, to allow him time to rest himself at intervals.

He states that bad consequences may follow the giving of hot, irritating compositions to horses in cases of colic on the supposition that the pains proceed from flatulencies pent up in the stomach and bowels. "In such cases, the horse is generally costive and the bowels are loaded with hardened excrements, which being collected in the rectum, or great gut, it presses down upon the neck of the bladder, and causes a stopping of urine."

He recommends "back-racking" (manual removal of feces) and emollient clysters till the bowel is open. Wherever the term "anus" is used, the older word, "fundament," is given by way of explanation. He states that back-racking is to be repeated frequently:

Till the confined air finds a passage backwards by the anus (fundament); when once this takes place, it frequently passes off in great explosions to the great relief of the horse. I have observed in such cases that the air that passed being long pent up in the bowel was more inflammable than ordinary, so as to catch fire from a candle if it happened to be near and spread a blue flame for a considerable space around, and sometimes to singe the hair and eyebrows of the bystanders who were within its reach.

He states that if the passage is clear, medicaments may be used if necessary. Clark in all probability knew of the stomach tube. Alexander Monroe, also of Edinburgh, invented it in 1763. In no instance does Clark mention this instrument. However, in one place, he states that "A pail full of water with the chill taken off was poured into the stomach, after which he seemed considerably relieved." Possibly the use of the stomach tube was so common it was assumed.

Clark was familiar with bots. In mentioning an autopsy on a horse that died of colic, he states:

On turning it [the stomach] inside out, an incredible number of small worms called bots were found sticking all around the sides of the lower part of the stomach in so much that it appeared entirely covered with them, and sticking as close to one another, as bees in a honey comb, and so firmly were the heads of these vermin fixed in the coats of the stomach, that in endeavoring to pull some of them off when alive, they broke in two, and their heads remained sticking in the coats of the stomach.

He states:

Bots are very uncommon in the winter, although they are frequently found in horses in the beginning of summer, and may be observed sticking to the anus; they likewise may be observed in considerable quantities amongst the horse's dung at this time. The bot worm seems to be a fly in a chrysalis state, for I have frequently found the outer case, or shell, open at one end, when the fly had left it.

He deplores the common practice of dosing animals with strong irritant medicines (ardent spirits, gin, ammonia water, turpentine, rosin, pepper, etc.) when suffering from inflammation of the larynx and wind pipe and swelled throat since such treatment: "Occasions the most violent coughing and difficulty of breathing, attended with trembling, cold sweats and other alarming symptoms. In such cases, whatever is forced upon them by the mouth, whether food or medicine, does them more real injury than is generally imagined." He states that nourishment can be given by rectal injections without causing any great commotion or disturbance in the system and without oppressing the disordered stomach. He opposed strongly forced feeding when the sick animal had no appetite. Here again he may have had in mind the use of the stomach tube, but he doesn't specifically mention it.

A whole chapter is given to blood-letting, mostly devoted to a description of the operation that untoward sequelae may be avoided. In the beginning, he says:

Although the method of performing the operation of blood-letting is generally thought to be pretty well known, yet there are many untoward accidents that frequently happen from the unskillful and unexperienced, in performing this operation.

After discussing several improper methods of opening the vein, he states:

Another custom equally absurd, is allowing the blood to fall in a dunghill amongst straw, in dry sand, or in dry dust, by which means, no distinct idea can be formed of the quantity that is, or ought to be, taken away. In such cases, I have seen horses fall down in a faint from the loss of too much blood, before the operator thought of stopping up the orifice.

He states that this happened in his presence in London—"A master farrier was the operator."

He discusses injuries to the jugular or other vein resulting in its obliteration, the formation of abscesses, the escape of blood under the skin and what may be edema following bleeding.

Although Clark recommends bleeding for every acute inflammation, whether general or local, for all spasmodic conditions, for all manner of pain and excitement, he did not subscribe to the common custom of bleeding "on every trifling occasion," nor as a prophylactic measure or a measure for getting horses into condition for gruelling work. He states:

Although the cases which may require bleeding are numerous, yet I would recommend one general caution, which is never to take away blood but when it is absolutely necessary, for it is a fluid that may be easily taken away, but cannot be so easily replaced; besides the practice of bleeding frequently, or at stated times, is exceedingly improper, as it disposes the body to become lax, weak and plethoric.

(*To be continued next month*)

HOUSTON VETERINARIANS ORGANIZE

On March 7, 1934, every veterinarian in the city of Houston, Texas, attended a called meeting and perfected a union to be known as "The Houston Veterinary Association." This is the first venture of this nature in this immediate community and the enthusiasm manifested gives evidence of longevity, profit and success.

The first permanent officers chosen by the Association are: J. G. Horning, president; F. N. Jenkins, first vice-president; Archie Stallings, second vice-president; and W. T. Hufnall, secretary-treasurer. Regular meetings will be held the first Thursday in the month, unless the program committee finds it necessary in arranging their appointments to name another day.—W. T. Huffnall, Secretary.

VETERINARIANS NAME R. H. LAY AS PRESIDENT.

R. H. Lay, Winnipeg, was elected President of the Veterinary Association of Manitoba at the annual meeting Feb. 9, 1934, in the Marlborough hotel. He succeeds Dr. F. C. Bishop. The registrar's report showed 101 active and 14 honorary members.

It was decided to raise the membership dues.

Mr. J. H. Evans, Deputy Minister of Agriculture, stressed the difficulties encountered by live stock owners in these times, owing to the low prices prevailing, in being able to avail themselves of the services of the practicing veterinarian, resulting in large areas in the province now being without the services of a competent practitioner, pointing out that the day may not be far distant when it may be found necessary to put into effect some system of State Veterinary service for the prevention of control of losses among live stock.

A number of other interesting papers were presented.

YOUNGBERG RETURNS TO "STATES"

Stanton Youngberg, after 26 years in the Philippine Bureau of Agriculture, retired from government service on January 1st, returning to the United States.

Doctor Youngberg arrived in the Philippines in 1907, a veterinarian in the Bureau of Agriculture; he was promoted to district veterinarian in 1909; to supervising veterinarian in 1913; to chief veterinarian in 1924; and to acting director of the Bureau of Agriculture on March 21, 1925. When the Bureau of Agriculture was divided into the Bureau of Plant Industry and the Bureau of Animal Industry, Doctor Youngberg was made Director of the latter, which position he held until retirement.

Doctor Youngberg arrived in the Philippines during a virulent epizootic of rinderpest. For years the control of this disease was so difficult under the conditions obtaining in the Philippines, that the public renamed the old Bureau of Agriculture, the "Bureau of Failure." Youngberg stayed to see the disease brought under complete control largely by means of a vaccine developed by the Bureau and perfected by Kelser of the Veterinary Corps of the Army. Doctor Youngberg mentions that in certain provinces, he has seen 90% of the carabaos and cattle wiped out by rinderpest.

Native Philippinos are being placed at the head of all government Bureaus in the Philippines as a preliminary to the withdrawal of the American government from the Islands.

NOTICE: SMALL ANIMAL PRACTITIONERS

The American Animal Hospital Association will hold its first semi-annual meeting at the Netherland Plaza Hotel, Cincinnati, Ohio, on Friday and Saturday, April 20 and 21, 1934. A splendid literary program will be offered. Organization plans have been moving along at a rapid pace and a three-year program is to be definitely established at the Cincinnati meeting. All those seriously interested in advancing standards and practices for small animal hospitals are cordially invited to attend and enter into the deliberations and discussions.

Upon request to the secretary a copy of the program will be mailed.

A. R. Theobald,
Secretary-Treasurer.

4545 Reading Rd.,
Cincinnati, Ohio.

HUDSON VALLEY VETERINARIANS TO MEET MAY 4

The regular quarterly meeting of the Hudson Valley Veterinary Medical Society was held in Albany on February 14, 1934; R. H. Spaulding, White Plains, President. The speaker of the day was H. J. Milks of Ithaca, President of the New York State Veterinary Medical Society, who discussed "Recent Developments in Therapeutics" and "Small Animal Practice."

A recognized authority on these topics, the speaker cited many interesting facts about the early use of drugs in treating disease, and pointed out that some common medicaments had been in use for centuries, usually long before reasons for their efficacy was understood. Example: Marco Polo used crude oil in the treatment of mange in the 13th century; digitalis and quinine in use in sixteen and seventeen hundred. Sedatives, however, are of later periods, most of them having been used less than one hundred years.

The speaker referred to the wide use of groups of drugs for a period and their replacement by others as one of the peculiarities of therapeutic history. However, some survive and still have an important place in modern medicine.

The importance of correct diagnosis before attempting treatment was stressed, also that results varied greatly in individuals and districts in apparently similar troubles treated the same way. Reference was made to the lack of definite information on many disease problems, to differences among experts as to cause of certain types of disease, such as, skin troubles, and lack of agreement as to whether due to internal or external causes.

It was voted to hold the next meeting at White Plains on May 9, 1934.

J. G. Wills.

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